

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF OHIO  
EASTERN DIVISION**

IN RE NATIONAL PRESCRIPTION  
OPIATE LITIGATION

This document relates to:  
Case No. 1:18-op-45817-DAP

COBB COUNTY  
Plaintiff,

vs.

PURDUE PHARMA, ET AL.,  
  
Defendants.

MDL No. 2804

Case No. 17-md-2804

Judge Dan Aaron Polster

**Expert Report of Candice L. Rosevear  
June 24, 2024**

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## I. Introduction

1. I, Candice L. Rosevear, am a co-founder of and managing director at Peregrine Economics, a Chicago-based firm that specializes in the application of economics, finance, statistics, data science, and valuation principles to questions that arise in a variety of contexts, including, as here, in the context of litigation. I have been asked by Counsel for Defendant Publix Supermarkets, Inc. (“Publix”) to review Plaintiff’s expert reports in this matter (Case Track Eight (“CT8”) of the *In Re National Prescription Opiate Litigation* Multi-District Litigation (“MDL”))—namely, the January 24, 2024 General Expert Report of Carmen A. Catizone, MS, RPh, DPh (the “Catizone General Report”) and the Specific Expert Report of Carmen A. Catizone, MS, RPh, DPh (the “Catizone Specific Report”), the January 24, 2024 Expert Report of Katherine Keyes, PhD (the “Keyes Report”), the February 7, 2024 Expert Report of Anna Lembke, M.D. (the “Lembke Report”), the January 24, 2024 Expert Report of Joseph T. Rannazzisi (the “Rannazzisi Report”), the January 24, 2024 Expert Report of Craig J. McCann, Ph.D. CFA (the “McCann Report”), and the January 24, 2024 Expert Report of Lacey R. Keller (the “Keller Report”), and related depositions<sup>1</sup> and documents.

2. I have been asked to respond to the economic and data aspects of the McCann Report and the Keller Report—in particular, as they relate to dispensing activity in Cobb County.<sup>2</sup> The McCann Report documents Dr. McCann’s processing of ARCOS data spanning

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<sup>1</sup> Deposition of Carmen Catizone, MS, RPh, Dph, May 23, 2024 (“May 23 Catizone Deposition”); Deposition of Carmen Catizone, MS, RPh, Dph, May 30, 2024 (“May 30 Catizone Deposition”); Deposition of Katherine Keyes, May 14, 2024 (“Keyes Deposition”); Deposition of Anna Lembke, M.D., May 16, 2024 (“Lembke Deposition”); Deposition of Joseph T. Rannazzisi, May 30, 2024 (“Rannazzisi Deposition”); Deposition of Craig McCann, PhD, May 15, 2024 (“McCann Deposition”); Deposition of Lacey R. Keller, May 23, 2024 (“Keller Deposition”).

<sup>2</sup> This Report does not address the distribution aspects of Plaintiff’s experts’ analyses except to state that Plaintiff’s experts have not put forth support for the McCann Report calculations of SOM Flagging Methods (McCann Report ¶¶ 104-177). Dr. McCann himself offers no opinion as to what these flagging methods mean, what hypothesis they test, whether they had a scientific basis, or whether any flagged Publix orders should not have been shipped or were suspicious (McCann Deposition at 50:15 – 62:7, 96:12 – 99:10). Dr. McCann testified that he was expecting the subject matter expert (in this case, Mr. Rannazzisi) to provide such support (McCann Deposition at 21:12 – 23:7, 60:6-20, 61:10-15), but the Rannazzisi Report is silent on the matter, and Mr. Rannazzisi testified that he did not have any input into Dr. McCann’s calculations, did not analyze the methods, and did not make any determination as to whether Dr. McCann’s SOM Flagging Methods complied with the Controlled Substances Act and related regulations (Rannazzisi Deposition at 321:1 – 322:2). My review of the ARCOS data shows that prior to October 2016, Publix distributed Schedule III controlled substances (including hydrocodone



January 2006 through December 2019,<sup>3</sup> Publix Dispensing Data from May 2006 through May 2019, and Kroger Dispensing Data, available from December 2008 through June 2018,<sup>4</sup> focusing on how Dr. McCann validated and adjusted the datasets. Further, the McCann Report summarizes opioid shipments between 2006 and 2019 with particular attention to Defendants' activity in Cobb County. Dr. McCann applies a set of algorithms to ARCOS data to identify distribution transactions meeting various criteria.<sup>5</sup> Dr. McCann also analyzes the Publix and Kroger Dispensing Data by processing each prescription through a set of algorithms to classify transactions under a variety of "red flags."<sup>6</sup> The McCann Report concludes that ARCOS is reliable, documents Defendants' opioid market share in Cobb County, and presents a variety of flagged transaction counts.<sup>7</sup> Dr. McCann also provides a discussion on his random sampling analysis of pharmacy notes.<sup>8</sup>

3. The Keller Report uses a proprietary dataset (IQVIA Xponent®) to document opioid prescription volume in Georgia as a whole as well as for Cobb County, Georgia, specifically, from January 1997 to December 2017. The Keller Report also provides additional analysis of certain prescribers using this dataset and Defendants' dispensing data (as processed by Dr. McCann), with the goal of showing that this proprietary dataset could have been used by Defendants to understand prescribers' county-wide and state-wide prescribing histories.<sup>9</sup> The Keller Report concludes that IQVIA data could have been used to understand individual doctor's prescribing behavior in Cobb County, as well as more general opioid prescribing trends.<sup>10</sup>

4. Furthermore, I have been asked to provide information in response to claims in the Lembke Report, Catizone Report, and Rannazzisi Report regarding opioid prescriptions

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combination products) and Schedule V controlled substances, but did not distribute any Schedule II controlled substances until October 2016.

<sup>3</sup> McCann Report ¶¶ 20, 29-32.

<sup>4</sup> McCann Report ¶¶ 178-185.

<sup>5</sup> McCann Report ¶¶ 84-177.

<sup>6</sup> McCann Report ¶¶ 178-194.

<sup>7</sup> McCann Report ¶¶ 17-18, 206-209.

<sup>8</sup> McCann Report ¶ 118.

<sup>9</sup> Keller Report ¶¶ 1-6. Note that IQVIA Xponent data does not contain a county indicator. Ms. Keller constructed the county designation through prescriber address zip codes (Keller Report ¶ VI.B.iii.51.iii.g).

<sup>10</sup> Keller Report ¶¶ 86-87

and Publix pharmacy bonuses.<sup>11</sup> I have also been asked to respond to certain Lembke Report assertions regarding the impact of various promotions on the sale of opioids in Cobb County Publix.<sup>12</sup>

5. Plaintiff includes Publix as one of the “Chain Pharmacy” Defendants in this matter<sup>13</sup> and alleges that Defendants “fueled and sustained” the opioid crisis because they allegedly “failed to maintain effective control over the distribution of prescription opioids...” under Plaintiff’s stated Fourth Claim for Relief, Public Nuisance.<sup>14</sup> The Amended Short Form specifically states that Publix (i) failed to maintain effective controls against diversion at the wholesale level (i.e., failed to implement an effective suspicious order monitoring system),<sup>15</sup> (ii) failed to maintain effective controls against diversion in the County by failing to control the supply chain, prevent diversion, report suspicious orders and halt high quantity shipments,<sup>16</sup> (iii) failed to implement effective policies and procedures to guard against diversion from its retail stores (i.e., lacked policies and procedures to guide pharmacy staff),<sup>17</sup> and (iv) failed to guard against diversion in dispensing to the County.<sup>18</sup> Plaintiff requests judgment that Defendants fund the abatement of the public nuisance, injunctive relief to lessen future harm, and all other relief to which they may be entitled.<sup>19</sup>

6. In formulating my opinions set forth in this Report, I have relied upon the analysis described herein; my knowledge, experience, and formal training in economics and statistics; and the allegations and facts set forth in this lawsuit. The materials I have considered and relied upon in forming my opinions in this Report are summarized in **Appendix A**.

<sup>11</sup> Lembke Report pp. 211-213 at ¶ 6.p.x.-xiv.; Rannazzisi Report p. 59; Catizone General Report p. 71.

<sup>12</sup> Lembke Report pp. 102-103 at § 5.

<sup>13</sup> The others include Walgreens, CVS, Kroger, Rite Aid, and Walmart. Plaintiff Cobb County’s Supplemental and Amended Allegations to be Added to “Short Form for Supplementing Complaint and Amending Defendants and Jury Demand” filed July 14, 2021, *In Re: National Prescription Opiate Litigation*, Case 1:18-op-45817-DAP (“Amended Short Form”) ¶ 1.

<sup>14</sup> Complaint filed June 12, 2018, *Cobb County, Plaintiff, vs. Purdue Pharma., L.P. Et Al.*, Case 1:18-op-45817-DAP (“Complaint”) ¶¶ 14, 850-859; Short Form for Supplementing Complaint and Amending Defendants and Jury Demand filed March 15, 2019, *In Re: National Prescription Opiate Litigation*, Case 1:18-op-45817-DAP (“Short Form”) pp. 2-3 and ¶¶ 156-159; Amended Short Form ¶¶ 2, 79-83, 460-502, 732-752.

<sup>15</sup> Amended Short Form ¶¶ 462-471.

<sup>16</sup> Amended Short Form ¶¶ 472-483.

<sup>17</sup> Amended Short Form ¶¶ 484-489.

<sup>18</sup> Amended Short Form ¶¶ 490-502.

<sup>19</sup> Amended Short Form ¶ 752.

7. Peregrine Economics is being compensated at an hourly rate of \$500 per hour for my work on this matter and my compensation is in no way contingent on the opinions provided or the outcome of this case.

8. I reserve the right to amend this Report to reflect new information that becomes available to me, including from the discovery process and/or future rulings from the Court.

## **II. Qualifications**

9. I hold a Master of Business Administration, with a concentration in economics, econometrics and statistics, and finance, from the University of Chicago Booth School of Business, as well as a bachelor's degree in business, with high distinction, from Indiana University's Kelley School of Business in Indianapolis.

10. I have been employed as an economist and data analyst for approximately 16 years. I along with three colleagues founded Peregrine Economics in January of 2024. Prior to that, I was a principal at Global Economics Group, where I was employed for over 10 years. Before that, I worked at Chicago Partners, an economics consulting firm, for approximately five years.

11. Over the course of my career, I have been responsible for conducting and managing economic, statistical, and empirical analyses in various areas, including wage and hour, labor discrimination, antitrust, securities, valuation, and general damages. I have worked extensively on statistical analyses in class action labor disputes involving hiring, promotion, and pay issues. I have significant expertise in data science, statistical sampling, financial modeling, the analysis of stock and bond price behavior, the estimation of economic damages, and the valuation of companies and financial instruments. I have been responsible for building, managing, and analyzing large and complex multi-dimensional databases on some of the highest profile cases, including *AMD v. Intel*.<sup>20</sup>

12. My experience includes work for plaintiffs, defendants, and an independent mediator. I have submitted expert reports and expert declarations to various federal and state courts. I have provided deposition testimony in federal and state courts and arbitration

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<sup>20</sup> *Advanced Micro Devices, Inc. v. Intel Corporation*, Case Nos. 1:05-cv-00441 and 1:05-md-01717, in the United States District Court for the District of Delaware.

testimony. I have also worked on statistical, economic, and data analytics projects outside the context of litigation.

13. For a comprehensive overview of my qualifications, please refer to my curriculum vitae attached as **Appendix B**.

### **III. Summary of Opinions**

14. The McCann Report and Keller Report present opioid dispensing numbers without explaining how Publix dispensing fits within the broader context of opioid dispensing in Cobb County during the relevant period. Between 2006 and 2019, there were over 250 entities besides Publix that dispensed opioids in Cobb County. Of these, Publix pharmacies account for a relatively small percentage of the total dispensed opioids in terms of dosage units (10%) and an even smaller portion of MME (morphine milligram equivalents) dispensed (7.1%), which means Publix dispensed lower strength opioids than the average dispenser in Cobb County. It also means that over 90% of opioids dispensed in Cobb County were dispensed at places other than Publix. Furthermore, the vast majority (95%) of prescriptions dispensed at Publix over this time period were not opioids, nor controlled substances, generally.

15. I cover this in greater detail in **Section VII**. I present maps that display the dispensed opioids in Cobb County at major chain and retail stores and opioid market share for select pharmacies (**Section VII.A**). I show that Publix's MME per dosage unit, a measure of dosage strength, is below that of other chain and retail pharmacies in Cobb County (**Section VII.B**). I show Publix dispensed fewer opioids per store compared to other dispensers on average in Cobb County, Georgia, and the United States (**Section VII.C**). I show that opioids and Schedule II drugs, expressed as a percentage of total prescriptions filled at Publix, never exceeded 6% (**Section VII.D**). I show that the majority of patients receiving a prescription from a Publix store in Cobb County only ever received one opioid prescription (**Section VII.E**) and the majority of patients that filled opioid prescriptions at a Publix store in Cobb County were over 45 years old (**Section VII.F**).

16. The 14 red flag computations, or algorithms, discussed by Mr. Catizone and executed by Dr. McCann, analyze Publix dispensing data and "flag" opioid prescriptions if, for instance, the patient travelled more than 25 miles to the provider, the patient was dispensed an

opioid and a benzodiazepine within 30 days of one another, or the patient “paid in cash” (patients who pay for their prescriptions themselves, “out-of-pocket”). Dr. McCann finds that of the 669,828 opioid prescriptions filled by Publix in Cobb County from 2006 to 2019, 305,069 (45.5%) reflected a red flag attribute.

17. First, Dr. McCann makes errors in applying Mr. Catizone’s criteria in counting red flags. The 45.5% figure includes prescriptions for Flags 7 and 13 include flags that defy temporal logic. Dr. McCann recognizes this and provides a revised calculation in his Table 84, but notably, Mr. Catizone and all other Plaintiff’s experts that refer to the McCann Report never refer to the lower, more conservative numbers from Table 84. I explain that Dr. McCann made further errors in applying Mr. Catizone’s red flag criteria for Flags 7 and 9 that result in thousands of incorrectly identified prescriptions.

18. Second, to the extent that Plaintiff or its experts use Dr. McCann’s calculations to implicitly or explicitly conclude that the red flags are proxies for Publix’s contribution to diversion,<sup>21</sup> Dr. McCann’s algorithms are being treated as a predictive statistical model, where for each flag, Mr. Catizone’s criteria are predictors of “illegitimate” prescriptions. In that context, Dr. McCann’s execution of the red flag algorithms suffers from what statisticians call “confounding effects,” or “confounding,” which leads to overflagging prescriptions, or false positives (the identification of a problem where none exists).

19. Confounding effects is a well-documented statistical concept that appears in medical research literature. For instance, Elwood states: “Confounding may be defined as a distortion of an exposure-outcome association brought about by the association of another factor with both outcome and exposure.”<sup>22</sup> A medical journal article clarifies: “A Confounder is a variable whose presence affects the variables being studied so that the results do not reflect the actual relationship.”<sup>23</sup>

20. Confounding effects occur when the model incorrectly identifies the relationship between the variables because it does not account for the influence of a third

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<sup>21</sup> “Drug Diversion: What is a Prescriber’s Role in Preventing the Diversion of Prescription Drugs?” HHS.gov. <https://www.hhs.gov/guidance/sites/default/files/hhs-guidance-documents/DrugDiversionFS022316.pdf>.

<sup>22</sup> Elwood JM, ed. *Causal Relationships in Medicine*. Oxford University Press, 1988, pp. 84-96.

<sup>23</sup> Pourhoseingholi, MA et al. “How to Control Confounding Effect by Statistical Analysis.” *Gastroenterology and Hepatology From Bed to Bench*, 2012, 5(2), pp. 79-83.

variable that affects both the dependent and independent variables. In this case, age is a confounding factor affecting both the need for opioids (older people may have more chronic pain and thus legitimate reasons for higher opioid use) and the likelihood of being flagged by the model.

21. To make this clearer with an analogy, consider the consumption of coffee. Imagine a model designed to predict who might be at risk for insomnia based on their coffee consumption. The model finds that people who drink more coffee are more likely to report sleeplessness and flags them as at-risk for insomnia.

22. However, if the model does not consider the variable of “time of day when coffee is consumed,” it misses a key point. Older adults might drink coffee early in the morning and have no issues sleeping, whereas younger adults might consume the same amount or even less coffee but do so late in the evening, affecting their sleep. If the model does not adjust for the time of day, it could erroneously flag older adults as at-risk just because they consume coffee, not recognizing that their consumption timing (early morning) does not typically lead to insomnia.

23. In both scenarios, failing to account for a crucial variable (age in the opioid model and time of coffee consumption in the insomnia model) leads to misleading conclusions and potentially inappropriate actions based on those conclusions.

24. Another obvious example of confounding effects is Dr. McCann’s execution of Flag 14, which considers one criterion: whether a patient pays out-of-pocket. When considering out-of-pocket payees as a risk factor in opioid prescription flagging, it is crucial to think about the underlying variables that could confound this relationship. One such potential confounder is the rate of uninsurance among patients. In statistical terms, if uninsurance rates significantly influence both the likelihood of being an out-of-pocket payee and the risk of being flagged, and if the model does not account for uninsurance, the relationship between out-of-pocket payment and risk of being flagged is spurious.<sup>24</sup> The true driver could be the lack of insurance, affecting both the method of payment and the flagging risk independently. To accurately model this and avoid misleading conclusions, it is critical to include both out-of-pocket payment status and insurance status (or directly, the uninsurance rate) in the model, which Dr. McCann does not do.

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<sup>24</sup> Wooldridge, Jeffrey M. *Introductory Economics* 5<sup>th</sup> ed. South-Western, 2013, pp. 49-50.

25. Importantly, according to Dr. McCann and Mr. Catizone, a red flag means the prescription warrants additional pharmacy due diligence. It does not mean it was improperly dispensed, or “illegitimate” per se. However, neither Dr. McCann nor Mr. Catizone provide a statistical basis for interpreting the rate their algorithm yields, or what it implies about improper dispensing. Without such basis, there is no way of interpreting whether the red flag rate Dr. McCann calculates for Publix differs in a statistically meaningful way from a hypothetical baseline pharmacy (or control) that properly dispensed all its prescriptions. Without such a baseline, there is no way to understand whether the Publix rate is higher, lower, or in line with expectations.

26. I provide an in-depth critique of Dr. McCann and Mr. Catizone’s red flag algorithms in **Section VIII**. I show that the Flag 14 rate (out-of-pocket pay) is strongly positively correlated with uninsurance rates in Cobb County: Both rates decline over time, in step with each other, around the same time health care reform law (Affordable Care Act) was enacted in the US (**VIII.C**). I show that the red flag rates are strongly positively correlated with patient age (**VIII.D**) and provide a literature review of age as a risk factor for certain health conditions that require the use of opioids to treat pain. I show that the algorithm’s misidentification is evident by examining the distribution of Dr. McCann’s flagged prescription outcomes: the distribution of his outcomes by age does not track opioid risk observed in society as reflected by opioid-related hospital admissions or overdose death rates (**VIII.D**). Throughout the section, I show the impact on the red flag rate of removing a set of flags highly correlated with age and uninsurance rates and correcting for other various smaller-impact mechanical issues with his model. Such adjustments reduce his red flag rate from 45.5% to 13.6%. The exercise is not comprehensive of all misidentification errors.

27. The Keller Report merely recites numbers on opioid prescription writing from two data sources, IQVIA (a subscription-based data source on provider prescriptions) and Publix Dispensing Data, overall and for a select set of doctors, suggesting that Publix could have used the data to identify problematic prescribers. The Keller Report fails to place the numbers into context and instead focuses heavily on providing ex post summaries. Furthermore, like the red flag analyses of Dr. McCann and Mr. Catizone, Ms. Keller’s summary analyses, and implications around how those summary data could have been used, lack statistical basis.



28. The Keller Report does not provide statistical analysis to show what the numbers mean or how they could be interpreted by Publix at the time: Are the doctor's prescribing patterns higher, lower, or in line with expectations? What threshold should be used to identify a "high prescribing" doctor? How should Publix, by way of statistical analysis, control for prescriber specialties that are known to prescribe opioids at a higher rate than average? Similarly, how should Publix control for patient information, such as age or illness of the population served by the doctors, which could indicate higher expected opioid use than average? Ms. Keller suggests that Publix could have used the data to identify problematic prescribers yet leaves all such prerequisite questions unanswered, stating she merely "ran the numbers."<sup>25</sup>

29. Ms. Keller's review of select doctors and recitation of prescription counts are misleading without this essential context and deeper statistical analysis.

30. I provide an in-depth critique of Ms. Keller's summaries in **Section IX**. I show that Publix in Cobb County filled only a small portion (1.3%) of the prescriptions originating from the doctors Ms. Keller identified in her report (**IX.A**). I show that within Publix stores, those doctors' prescriptions made up no more than 0.77% of the opioid prescriptions filled by Publix in Cobb County (**IX.B**). And finally, I discuss the statistical implications of Ms. Keller's implicit claim that Publix could have used IQVIA data and/ or Publix Dispensing Data to identify problematic doctors (**IX.C**).

31. Plaintiff's experts portray pharmacist bonuses and pharmaceutical company incentives as causal contributors to improper opioid prescription fills without performing any statistical analysis to support such claims. None of the experts quantify how opioid prescriptions (flagged or not) contribute to pharmacist compensation, and none put that in the context of overall pharmacist compensation. None cite to academic research on the characteristics of effective incentives, but simply assume that Publix's bonus structure was effectively designed to cause unprofessional behavior. Furthermore, Dr. Lembke does not provide any data to show the impact of coupons and discounts on Cobb County Publix opioid dispensing.

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<sup>25</sup> Keller Deposition at 37:12-16 ("...The fact that I analyzed and ran the numbers, which is the extent to my opinions..."). Keller Deposition at 43:13-16 ("What people and others choose to draw from those – or draw from those tables is their own conclusions.").



32. I address these issues in **Section X**. I provide an example that places opioid prescription-related bonuses in context (**Section X.A**), showing that filling red flag prescriptions contributes a small percentage to that segment of the bonus calculation, which itself is only part of the quarterly bonus calculation. In addition, I show, when data is available, the impact of the promotions on sales that Dr. Lembke references in her report are not supported (**Section X.B**).

33. The remainder of my Report is organized as follows: **Section IV** provides a brief overview of Publix's history. **Section V** reviews DEA controlled substance classifications. **Section VI** introduces the various datasets analyzed in this matter, including the DEA ARCOS dataset that is the basis for much of the analysis in the McCann Report, Publix's dispensing data, other chain pharmacy dispensing data, and the IQVIA data that is the basis for much of the Keller Report analysis, among others. **Section VII** provides context for Publix opioid dispensing within Cobb County, including its market share and how opioid prescriptions were a small percentage of all Publix prescriptions throughout the Analysis window. **Section VIII** reviews Dr. McCann's red flag algorithms and explains why they are prone to assign unnecessary flags and are difficult to interpret. **Section IX** reviews the Keller Report. **Section X** addresses certain aspects of Plaintiff's expert reports, including bonuses and manufacturer promotions. **Section XI** provides my conclusions.

34. I reserve the right to update the analyses of this Report as more information becomes available to me over the course of this litigation.

#### **IV. Overview of Publix Super Markets, Inc.**

35. Publix is a privately held, employee-owned supermarket chain founded in 1930 in Florida and has grown to be one of the ten largest-volume supermarket chains in the country, employing over 250,000 people, with retail sales of over \$54 billion in 2022. Today it operates 1,377 stores in eight southeastern states: Florida, Georgia, Alabama, South Carolina, North Carolina, Tennessee, Kentucky, and Virginia. The company also has several distribution centers and manufacturing facilities in some of these states.<sup>26</sup>

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<sup>26</sup> "Stockholders." *Publix*. <https://www.publixstockholder.com/>; "Facts & Figures." *Publix*. <https://corporate.publix.com/about-publix/company-overview/facts-figures>.

36. At the start of 2006, Publix operated 875 supermarkets, many of which also contained pharmacy departments, located in five states: Florida, Georgia, South Carolina, Alabama, and Tennessee.<sup>27</sup> At the end of 2019, Publix operated 1,239 supermarkets located in those states plus North Carolina and Virginia, and employed over 200,000 people.<sup>28</sup>

## V. Overview of DEA Controlled Substance Categories

37. The DEA categorizes controlled drugs, substances, and chemicals into five schedules, Schedule I to V. Schedule II includes (a) 13 of the 14 relevant prescription opioids at issue<sup>29</sup> (buprenorphine, the other opioid at issue here, is a Schedule III drug), (b) certain amphetamines, which are found in treatments for attention deficit disorder (Adderall, Ritalin), and (c) certain barbiturates, which can be used to treat seizures and insomnia.<sup>30</sup> Schedule II drugs are considered to have a high potential for abuse and dependence.<sup>31</sup>

<sup>27</sup> Publix SEC Form 10-K for year ending December 31, 2005, filed March 16, 2006, p. 1; Publix SEC Form 10-K for year ending December 31, 2006, filed February 28, 2007, p. 1.

<sup>28</sup> Publix SEC Form 10-K for year ending December 31, 2019, filed March 2, 2020, p. 1.

<sup>29</sup> The 14 opioids at issue are buprenorphine, codeine, dihydrocodeine, fentanyl, hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine, opium (powdered), oxycodone, oxymorphone, and tapentadol. Order Re Subpoena for Updated Arcos Data filed July 14, 2023, *In Re: National Prescription Opiate Litigation*, Case 1:17-md-02804-DAP (“Arcos Subpoena Order”) nn. 2, 3.

<sup>30</sup> “Controlled Substances by CSA Schedule.” *DEA U.S. Department of Justice. Diversion Control Division*. [https://www.deadiversion.usdoj.gov/schedules/orangebook/e\\_cs\\_sched.pdf](https://www.deadiversion.usdoj.gov/schedules/orangebook/e_cs_sched.pdf); “Ritalin.” *Drugs.com*.

[<sup>31</sup> “Drug Scheduling.” \*DEA United States Drug Enforcement Administration\*.](https://www.drugs.com/ritalin.html#:~:text=What%20is%20Ritalin%3F,(ADHD)%2C%20and%20narc%20olepsy;“Adderall.”Drugs.com.https://www.drugs.com/adderall.html;Shoar,NazilaSharbaf,RamanMarwaha,MohammedMolla.“Dextroamphetamine-Amphetamine.”StatPearls.https://www.ncbi.nlm.nih.gov/books/NBK507808/#:~:text=Dextroamphetamine%20Famphetamine%20belongs%20to%20a,abuse%20in%20the%20United%20States.</a></p>
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<https://www.dea.gov/drug-information/drug-scheduling>. Schedule III drugs have a moderate to low potential for dependence, lower than Schedule II drugs but higher than Schedule IV, and include anabolic steroids and ketamine. *Also see*, Preuss, Charles V., Arun Kalava, and Kevin C. King. “Prescription of Controlled Substances: Benefits and Risks.” *StatPearls*.

[14](https://www.ncbi.nlm.nih.gov/books/NBK537318/#:~:text=They%20are%20typically%20prescribed%20to,metamphetamine%2C%20pentobarbital%2C%20and%20secobarbital.”</a></p>
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38. Buprenorphine is categorized as a Schedule III drug. Schedule III drugs have a potential for abuse, but less than Schedule II drugs.<sup>32</sup> Other prescription Schedule III products include certain narcotics, anabolic steroids, and seizure medications, among others.<sup>33</sup>

39. Prior to October 2014, the DEA classified hydrocodone combination products (“HCPs”) as Schedule III products even though hydrocodone itself was classified as a Schedule II product. On August 22, 2014, the DEA published a rule, effective 45 days later (October 6, 2014), reclassifying HCPs into the more restrictive Schedule II category.<sup>34</sup>

## VI. Overview of Data Relied Upon in This Matter

### A. DEA ARCOS Data, Processed by Dr. McCann

40. ARCOS is the DEA’s Automated Reports and Consolidated Ordering System, a data gathering system comprised of manufacturers and distributors’ reports of their controlled substances transactions, from manufacture, to distribution, to sale. The completeness and accuracy of the data depends on what is provided by DEA registrants.<sup>35</sup> In this matter, the DEA ARCOS data reflects:

“the names of all labelers (as identified by NDC code) who manufactured and/or labeled more than five percent (5%) of the market share of opioids distributed in the relevant county or county-equivalent in at least three of the nine years available in the ARCOS data” and “the name of each distributor who distributed more than five percent (5%) of the market share of opioids

<sup>32</sup> “Drug Scheduling.” *DEA United States Drug Enforcement Administration*. <https://www.dea.gov/drug-information/drug-scheduling>.

<sup>33</sup> “Controlled Substances by CSA Schedule.” *DEA U.S. Department of Justice. Diversion Control Division*. [https://www.deadiversion.usdoj.gov/schedules/orangebook/e\\_cs\\_sched.pdf](https://www.deadiversion.usdoj.gov/schedules/orangebook/e_cs_sched.pdf); “Pregabalin Capsules.” *Cleveland Clinic*. <https://my.clevelandclinic.org/health/drugs/19097-pregabalin-capsules>; “Controlled Substances Schedules.” *DEA U.S. Department of Justice. Diversion Control Division*. <https://www.deadiversion.usdoj.gov/schedules/schedules.html#:~:text=Examples%20of%20Schedule%20II%20narcotics,opium%2C%20codeine%2C%20and%20hydrocodone>.

<sup>34</sup> “DEA to Publish Final Rule Rescheduling Hydrocodone Combination Products.” *DEA United States Drug Enforcement Administration*. <https://www.dea.gov/press-releases/2014/08/21/dea-publish-final-rule-rescheduling-hydrocodone-combination-products>; “Schedules of Controlled Substances: Rescheduling of Hydrocodone Combination Products From Schedule III to Schedule II.” *79 Federal Register* 49661-49662 (August 22, 2014) (21 CFR Part 1308). <https://www.govinfo.gov/content/pkg/FR-2014-08-22/pdf/2014-19922.pdf>; “Barbiturates.” *Cleveland Clinic*. <https://my.clevelandclinic.org/health/treatments/23271-barbiturates>.

<sup>35</sup> “ARCOS Retail Drug Summary Reports.” *DEA U.S. Department of Justice. Diversion Control Division*. [https://www.deadiversion.usdoj.gov/arcos/retail\\_drug\\_summary/arcos-drug-summary-reports.html](https://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/arcos-drug-summary-reports.html).

distributed in the relevant county or county-equivalent in at least three of the nine years available in the ARCOS data.”<sup>36</sup>

41. The ARCOS data analyzed in this matter contains transactional data from 2006 to 2019 for 14 prescription drugs: buprenorphine, codeine, dihydrocodeine, fentanyl, hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine, opium (powdered), oxycodone, oxymorphone, and tapentadol (collectively “MDL Opioids”).<sup>37</sup> The data includes shipments from distributors, such as AmerisourceBergen, McKesson, and Cardinal Health, to dispensers, such as chain pharmacies, retail pharmacies, hospitals, clinics, detox centers, practitioners, and teaching institutions.

42. The ARCOS data contains 34 data fields. The first ten fields relate to the entity reporting the shipment (e.g., manufacturers and distributors), including their DEA number, name, and address. The next ten fields contain similar information pertaining to the buyer. The remaining fourteen fields relate to details of the prescription drug, such as the drug code, quantity, order form number, dosage units, and strength. ARCOS data can be analyzed at the store, city, county, state, and national levels.

43. I retrieved ARCOS data spanning 2006 through 2019 for the state of Georgia from Dr. McCann’s website: <https://www.slcg.com/opioid-data/>. Dr. McCann cleaned and processed this dataset as documented in his report.<sup>38</sup> In addition, Dr. McCann provided his report backup materials, including programs that are needed to further process the Georgia ARCOS data so that it can be used to replicate the tables presented in his report. I also retrieved from the SLCG website the processed version of the ARCOS data spanning 2006 to 2019 for the United States.

## **B. Defendant Dispensing Data Processed by Dr. McCann**

44. Publix and Kroger provided Plaintiff with segments of their dispensing data for Georgia and Cobb County. Dr. McCann processed these datasets (respectively, “Publix Dispensing Data” and “Kroger Dispensing Data,” collectively “Defendant Dispensing Data”), compared them with ARCOS data, concluded that the data are reliable, and ran a red flag

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<sup>36</sup> Short Form n. 2.

<sup>37</sup> Arcos Subpoena Order n. 3.

<sup>38</sup> McCann Report ¶¶ 11, 28-77.

analysis on this data. Publix Dispensing Data contains records from May 2007 through December 2019<sup>39</sup> for the MDL Opioids (excluding buprenorphine), benzodiazepines (prescription drugs used to treat anxiety), and muscle relaxers.<sup>40</sup> Kroger Dispensing Data contains records from October 28, 2008 through June 12, 2018 for the MDL Opioids, benzodiazepines, and muscle relaxers. Each row of data represents one prescription transaction and contains information about the prescriber, drug, patient, and pharmacy.<sup>41</sup>

45. I utilize the Defendant Dispensing Data included in Dr. McCann's production of backup materials. Prescriber information includes the date the prescription was written and the prescriber's name, zip code, DEA number, and NPI number. The prescribed drug information includes the product name, NDC number, drug name, product form (e.g., tablet, patch), days of supply (the number of days that a prescribed medication is expected to last when taken according to the prescribed dosage instructions), quantity prescribed, dosage units, MME, date filled, and refill number. Patient information includes patient ID, zip code, and date of birth. Pharmacy information includes the pharmacy address, county, zip code, store number, pharmacy DEA number, and the pharmacist's name.

### C. IQVIA Xponent

46. Ms. Keller analyzes prescriber-level opioid prescription data from IQVIA in her report, which I understand was purchased for this litigation.<sup>42</sup> IQVIA is a company that offers a proprietary dataset called Xponent, which is based on sales records from pharmacies and currently covers 93% of the retail channel and 77% of mail and long term care channels.<sup>43</sup> According to the Keller Report, pharmacies such as Rite Aid, Walgreens, Kroger, and CVS have been providing their sales and inventory data to IQVIA for decades, whereas Publix has been providing this information to IQVIA only since 2010.<sup>44</sup>

<sup>39</sup> PUBLIX-MDLT8-00000003-0004. Prior to May 2007, the data appear incomplete, with no month containing 2,000 opioid prescriptions, whereas May 2007 has over 17,000. Therefore, the majority of the analysis for Publix Dispensing Data starts from May 2007.

<sup>40</sup> Dr. McCann received dispensing data for buprenorphine and other drugs but removed them before initiating any of his analyses.

<sup>41</sup> McCann Report ¶¶ 92-94.

<sup>42</sup> Keller Report ¶¶ 1, 5, 19, 21-26; Keller Deposition at 27:6-13.

<sup>43</sup> "Available IQVIA Data." IQVIA. <https://www.iqvia.com/insights/the-iqvia-institute/available-iqvia-data>.

<sup>44</sup> Keller Report ¶¶ 19-24.

47. Although filled prescriptions from pharmacies are the source of the Xponent data, each row of data relates to a prescriber and contains IQVIA's estimated number of prescriptions written by that prescriber in each month for a particular drug. IQVIA uses the prescription records it collects and "reconciles them to wholesale deliveries, and projects to 100% coverage of all prescription activity using a patented projected method...[IQVIA's] method standardizes these data into estimated prescription counts and uses geospatial methods to align the 'estimated' prescriptions for the nonsample pharmacies to prescribers with observed prescribing behaviors for the same product in nearby sample pharmacies."<sup>45,46</sup> Therefore, the prescription data associated with a particular prescriber is a combination of actual and projected prescriptions. Although currently IQVIA states that it covers 93% of the retail channel, in 2020 it covered about 90%, and it covered approximately 70% in 2015.<sup>47</sup>

48. In this matter, Ms. Keller provided the raw data files from IQVIA and the programs to replicate her analytical datasets. According to the Keller Report, IQVIA data for Georgia from 1997 through 2017 is comprised of over 118 million prescriptions, of which over 8.4 million were located in Cobb County.<sup>48</sup> It contains prescription data for the MDL Opioids, excluding Opium (powdered).

#### **D. Publix CII Pull Reports**

49. Counsel for Publix provided me with "CII Pull Reports" produced by Publix ranging from August 2012 through April 2021.<sup>49</sup> Publix prepared these CII Pull Reports from

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<sup>45</sup> Hicks, Laura A. et al. "US Outpatient Antibiotic Prescribing Variation According to Geography, Patient Population, and Provider Specialty in 2011." *Clinical Infectious Diseases*, 2015, 60(9), pp. 1308-16.

<sup>46</sup> Keller Report ¶ 24

<sup>47</sup> Tran, Quyen et al. "An Evaluation of the Utility of Big Data to Supplement Cancer Treatment Information: Linkage Between IQVIA Pharmacy Database and the Surveillance, Epidemiology, and End Results Program." *Journal of the National Cancer Institute Monographs*, 2020, 2020(55), pp. 72-81.

<sup>48</sup> Keller Report ¶ 29.

<sup>49</sup> The Bates numbers of the CII Pull reports I received from Publix are listed in my materials considered list. Of the Excel files, PUBLIX-MDLT8-00122998 contained no data, PUBLIX-MDLT8-00123058 contained a subset of the data found in PUBLIX-MDLT8-00123050, and some files were identical to each other. Based on my review of the data and the file name for each Excel spreadsheet, there are no CII Pull Reports for the months of October 2013, December 2015, January 2016, July 2016, and January 2017. I understand from Counsel for Publix that Publix began generating these reports in August 2012.



ERx or EnterpriseRx dispensing data (“Enterprise Data”) over time to summarize monthly Schedule II (CII) prescriptions, total prescriptions, and prescription rates of Schedule II drugs as well as oxycodone and hydrocodone, separately, for each Publix store. Among other uses, the CII Pull Reports can be used to track Schedule II prescriptions and oxycodone and hydrocodone prescriptions as a percentage of total prescriptions at the store level over time.

#### **E. Publix Enterprise Dispensing Data**

50. Counsel for Publix provided me with the Enterprise Data in 68 text files, each containing the transactions for a single calendar quarter, from 2006 to 2022, with over 154 million records.<sup>50</sup> The Enterprise Data includes all Publix prescriptions filled over this time period at Georgia Publix stores for opioids and non-opioids. Each record provides details about the prescription, such as the fill date and sold date, a prescription number, refill number; details about the pharmacy, such as the Publix store number, the DEA Number of the store; details about the patient, including a patient identifier; and details about the drug, such as name, description, schedule, quantity dispensed, and days of supply.

51. In order to properly code the drug base and categorize prescriptions as opioids, I used the National Drug Code (“NDC”) dictionary, which is available at the DEA website.<sup>51</sup> The Enterprise Data contains an NDC field, which is a unique code also found in the NDC dictionary. Then the NDC dictionary is used to decipher that code and identify the active ingredients and categorize prescriptions as either opioid or non-opioid.

52. I requested the Enterprise Data primarily to 1) validate the information in the CII Pull Reports starting in 2012 regarding CII prescriptions as a percent of overall store prescriptions; and 2) to calculate CII prescriptions as a percent of overall store prescriptions prior to 2012.

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<sup>50</sup> Like the Publix Dispensing Data, Enterprise Data appear to be complete starting mid-2007. For instance, starting with the file for Q3 2007, there are approximately 1.2 million records, and for Q4 there are 1.4 million records. No quarter after that has fewer records. Q2 2007 has almost 960 thousand records, but the prior quarter has only 348 thousand, and Q4 2006 has only 142 thousand.

<sup>51</sup> “National Drug Code Dictionary.” *DEA U.S. Department of Justice. Diversion Control Division.* <https://www.deadiversion.usdoj.gov/arcos/ndc/ndcfile.txt>; “[Readme.txt File – October 2010] ARCOS NDC Dictionary File/Record Layout.” *DEA U.S. Department of Justice. Diversion Control Division.* <https://www.deadiversion.usdoj.gov/arcos/ndc/readme.txt>.

## **F. National Plan and Provider Enumeration System Data**

53. I use data from the National Plan and Provider Enumeration System (“NPES”)<sup>52</sup> and Centers for Medicare & Medicaid Services to assign medical specialty to the prescribers in the Defendant Dispensing Data and Enterprise Data based on each prescriber’s National Provider Identifier (“NPI”) number. The NPES data provides a 10-character taxonomy code associated with each NPI number from as early as 2005 through 2024.<sup>53</sup> I then use the Taxonomy Crosswalk available from the National Uniform Claim Committee to assign the primary specialty corresponding to each prescriber.<sup>54</sup>

## **VII. Dr. McCann and Ms. Keller’s Descriptive Summaries of Publix’s Opioid Dispensing Omit Critical Context**

54. Dr. McCann and Ms. Keller provide broad characterizations of opioid dispensing<sup>55</sup> but fail to provide useful context around Publix’s relative opioid dispensing patterns in Cobb County. By excluding essential context, they obscure Publix’s role as a relatively minor dispenser in Cobb County. For example:

- a) Publix accounted for approximately 10.0% of dosage units and 7.1% of MME dispensed during the analysis window, 2006 to 2019.
- b) Publix pharmacies in Cobb County consistently dispensed lower strength opioids and fewer opioids per store than average in Cobb County.

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<sup>52</sup> National Plan and Provider Enumeration System Data available at [https://download.cms.gov/nppes/NPPES\\_Data\\_Dissemination\\_April\\_2024.zip](https://download.cms.gov/nppes/NPPES_Data_Dissemination_April_2024.zip).

<sup>53</sup> An NPI can be associated with more than one specialty, but the dataset also has an indicator for the primary specialty associated with NPI, and I use this primary specialty for each NPI. “Find Your Taxonomy Code.” CMS.gov. <https://www.cms.gov/medicare/enrollment-renewal/providers-suppliers/health-care-taxonomy>.

<sup>54</sup> National Uniform Claim Committee Taxonomy Crosswalk available at [https://nucc.org/images/stories/CSV/nucc\\_taxonomy\\_240.csv](https://nucc.org/images/stories/CSV/nucc_taxonomy_240.csv).

<sup>55</sup> The McCann Report and the Keller Report both recite data on opioid volumes, and generally express such volumes in absolute terms. For example, see McCann Report ¶¶ 84-90, 98-100, 183-185 and Keller Report ¶¶ 29-30. Dr. McCann does provide a table that calculates Publix share of opioid shipments received in Cobb County, but not before reducing the denominator to his adjusted Chain and Retail definition (McCann Report ¶¶ 62, 101-103). Furthermore, Dr. McCann states that he is only “running the numbers” (McCann Deposition at 58:4 – 61:18), and Ms. Keller says that her assignment was to highlight specific prescribers rather than focus on Publix market share (Keller Deposition at 69:15 – 70:10 and 73:19 – 74:8).



- c) Opioid dispensing constituted less than 5% of Publix's total pharmacy operations in the county from 2006 to 2019. Thus, 95% of the prescriptions filled by Publix in Cobb County were for non-opioid drugs.
- d) Nearly two-thirds of the opioid prescriptions filled by Publix in Cobb County were for patients aged over 45, which, as I describe in detail below with literature support, aligns with the age group more likely to have health conditions warranting opioid prescription usage.
- e) Over two-thirds of the Publix Cobb County customers who received an opioid only ever received a single opioid prescription. Publix dispensed opioids to approximately 26,000 people per year in Cobb County, on average. Of that, 70.3% (18,500) received only one opioid prescription, 23.4% (6,163) received two to five opioid prescriptions, and 6.3% (1,600) received more than five opioid prescriptions. Notably, 1,600 people is less than 0.2% of the population of Cobb County of over 700,000 people.<sup>56,57</sup>

55. I describe each topic in detail in the sections that follow, providing greater context on Publix's opioid distribution in Cobb County.

**A. Publix Dispensed 10.0% of Opioids in Terms of Dosage Units or 7.1% in Terms of MME in Cobb County from 2006 to 2019**

56. **Figure 1** summarizes Publix's market share of opioids dispensed<sup>58</sup> from 2006 to 2019, according to the ARCOS data. In Cobb County, Publix dispensed 10.0% in terms of

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<sup>56</sup> The population of Cobb County was 679,699 in 2006 and 760,141 in 2019. I use the average (720,192) in the calculation. U.S. Census Bureau. "Annual Estimates of the Resident Population for Counties of Georgia: April 1, 2000 to July 1, 2009." Accessible at <https://www2.census.gov/programs-surveys/popest/tables/2000-2009/counties/totals/co-est2009-01-13.xls>; U.S. Census Bureau. "Annual Estimates of the Resident Population for Counties in Georgia: April 1, 2010 to July 1, 2019." Accessible at <https://www2.census.gov/programs-surveys/popest/tables/2010-2019/counties/totals/co-est2019-annres-13.xlsx>.

<sup>57</sup> The figures provided in this analysis are based on the location of the Publix Cobb County pharmacies. Over 80% of the prescriptions filled at Publix Cobb County were for customers who also live in Cobb County (=537,993/669,828). Of Cobb County residents who used Publix pharmacies, 94.7% of their prescriptions were filled at Publix Cobb County (=537,993/567,972).

<sup>58</sup> ARCOS provides data on the shipments of 14 opiates from manufacturers to dispensers, including Chain and Retail pharmacies. This Report uses the term "dispensed" interchangeably with "shipments," which assumes that all opioid shipments to dispensers were ultimately dispensed. The ARCOS data summarized in this Report aligns with the McCann Report ¶¶ 84-90.

dosage units and 7.1% in terms of MME. Notably, the figures indicate that, on average, Publix filled less potent opioids than other dispensers in Cobb County given that its MME share is 29% less than its dosage unit share ( $=7.1\%/10\%-1$ ).

**Figure 1: Publix Share of Opioids Dispensed in Cobb County, in Dosage Units and MME, 2006 to 2019**

	Dosage Units	MME
Non-Publix	296,743,629	7,009,487,503
Publix	33,004,369	537,294,511
<b>Total</b>	<b>329,747,998</b>	<b>7,546,782,014</b>
<b>Publix Share</b>	<b>10.0%</b>	<b>7.1%</b>

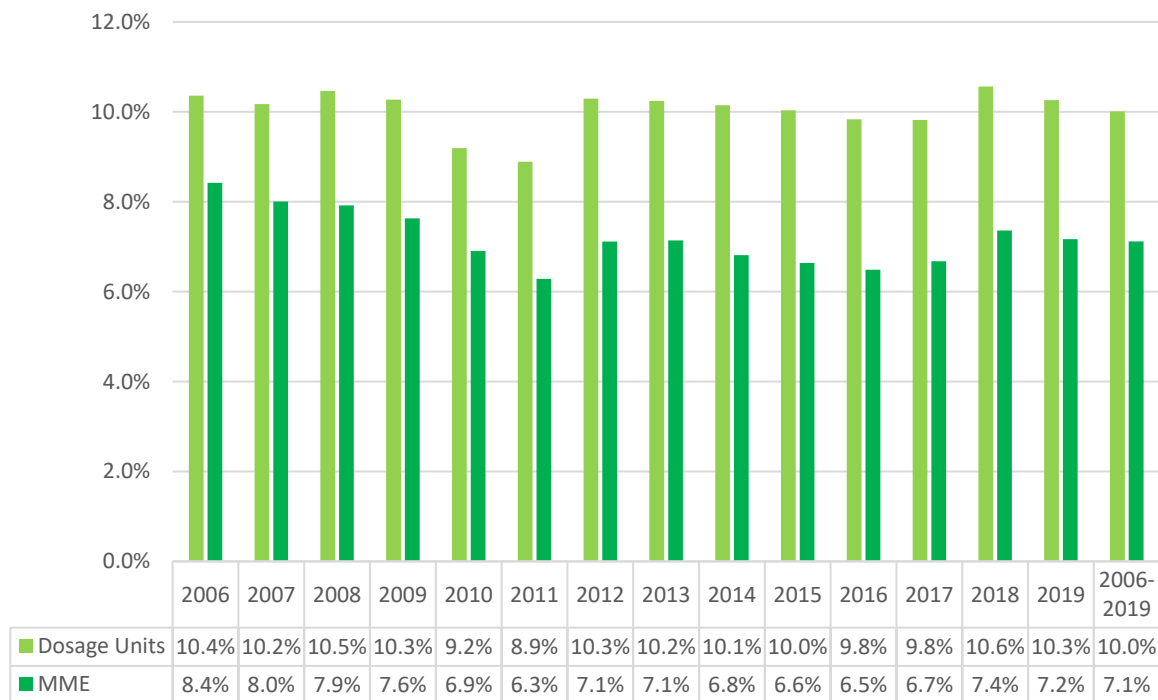
57. The McCann Report at Table 20 shows Publix share at 12.0% of dosage units based on shipments to chain and retail pharmacies in Cobb County.<sup>59</sup> Dr. McCann achieves this higher number by reducing what is included in the denominator to only retail and chain pharmacies, rather than total opioids in Cobb County. This is inconsistent with how he presents opioids dispensed in Cobb County up to that point in his report, such as McCann Report Tables 11, 12, 13, and 14, where he includes all opioids dispensed regardless of “Buyer Business Activity (such as “Hospital/Clinic,” “Maintenance & Detox,” and others). Furthermore, without explicitly informing the reader when he applies his reclassification, for Table 20 the McCann report reclassifies certain Cobb County pharmacies that ARCOS classifies as “Retail” as “Closed-Door,” which he classifies as mail-order, long-term care, and managed care pharmacies, which further reduces the denominator.<sup>60</sup>

58. **Figure 2** shows that Publix’s share of dosage units and MME was relatively stable over the 2006 to 2019 period. Publix dosage units share ranged from 8.9% to 10.6% and its MME share ranged from 6.3% to 8.4%.

<sup>59</sup> McCann Report ¶ 103.

<sup>60</sup> McCann Report ¶ 62.

**Figure 2: Publix Share of Opioids Dispensed in Cobb County, in Dosage Units and MME, by Year, 2006 to 2019**



59. Publix operated 25 stores in Cobb County from 2006 to 2019, as shown in **Figure 3.**<sup>61</sup>

<sup>61</sup> PUBLIX-MDLT8-00000002. Notably, Dr. McCann incorrectly includes Store #541, which is in Fulton County, in his analysis of ARCOS data. I exclude Store #541 from my analysis.

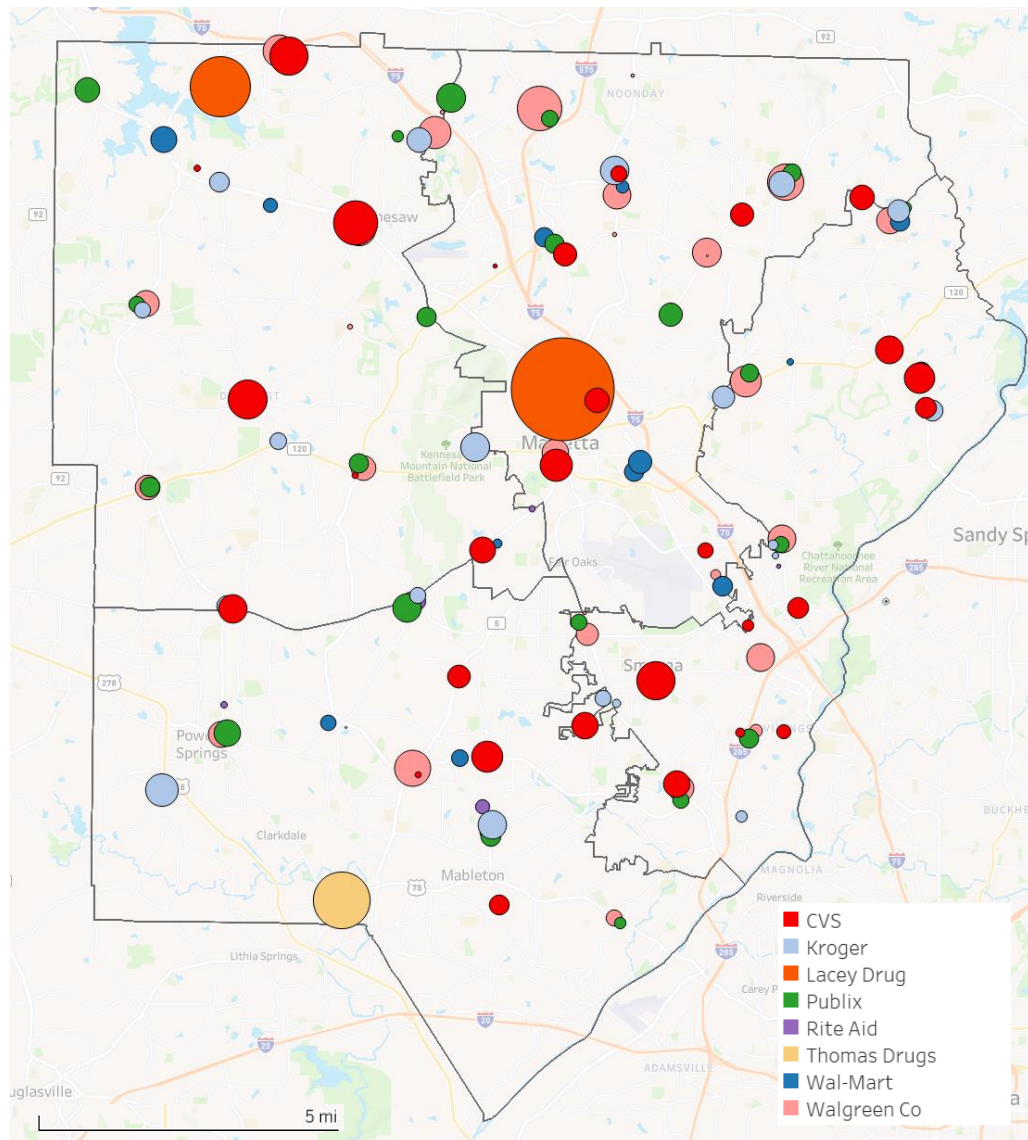
**Figure 3: Publix Cobb County Store List**

Store		DEA Number	Address	City	State	Zip	County	Open Date	Closed Date
Number									
1	33	BP3387619	3605 Sandy Plains Rd. Ste. 200	Marietta	GA	30066	Cobb	11/12/1992	
2	86	BP7985798	4401 Shallowford Road	Roswell	GA	30075	Cobb	10/24/2002	
3	122	BP3449142	1750 Powder Springs Rd. SW	Marietta	GA	30064	Cobb	12/30/1992	
4	146	BP3852503	4430 Wade Green Rd NW, Ste 100	Kennesaw	GA	30144	Cobb	12/16/1993	
5	155	BP3746914	1100 Johnson Ferry Rd.	Marietta	GA	30068	Cobb	9/27/1993	
6	280	BP3836004	1050 E. Piedmont Rd., Ste 130	Marietta	GA	30062	Cobb	11/15/1993	
7	464	BP3872783	5015 Floyd Rd. SW	Mableton	GA	30126	Cobb	1/20/1994	
8	496	BP4186739	5100 Dallas Hwy.	Powder Springs	GA	30127	Cobb	11/21/1994	
9	536	BP4712611	2451 Cumberland Pkwy.	Atlanta	GA	30339	Cobb	2/29/1996	
10	548	BP4625301	50 Barrett Parkway Suite 1000	Marietta	GA	30066	Cobb	11/13/1995	
11	559	BP4737548	2774 N. Cobb Pkwy., Ste 201	Kennesaw	GA	30152	Cobb	2/26/1996	
12	561	BP4742260	2500 Dallas Hwy SW Suite 300	Marietta	GA	30064	Cobb	3/11/1996	
13	566	BP4878243	1727 Mars Hill Rd. NW	Acworth	GA	30101	Cobb	7/25/1996	
14	580	BP5126001	2148 South Cobb Drive SE	Smyrna	GA	30080	Cobb	12/12/1996	12/14/2016
15	593	BP5727271	3507 Baker Road N. W. Suite #300	Acworth	GA	30101	Cobb	3/10/1998	
16	670	BP6259495	3721 New Macland Road Ste 300	Powder Springs	GA	30127	Cobb	5/6/1999	
17	672	BP6259483	1860 Sandy Plains Road	Marietta	GA	30066	Cobb	11/15/2001	
18	725	BP6517342	2900 Delk Road SE Suite 1150	Marietta	GA	30067	Cobb	2/17/2000	
19	753	BP7039008	4480 S Cobb Dr. SE	Smyrna	GA	30080	Cobb	12/7/2000	
20	764	BP7157286	4290 Bells Ferry Road NW	Kennesaw	GA	30144	Cobb	3/22/2001	
21	769	BP7201306	1635 Old 41 Highway N.W.	Kennesaw	GA	30152	Cobb	4/26/2001	
22	1077	BP8761416	2090 Baker Road, N.W.	Kennesaw	GA	30144	Cobb	5/13/2004	
23	1096	BP9050802	6110 Cedarcrest Road, N.W.	Acworth	GA	30101	Cobb	2/10/2005	
24	1112	BP9017751	1025 Veterans Memorial Hwy S.E. Ste. 400	Mableton	GA	30126	Cobb	12/2/2004	
25	1250	FP6457382	2955 Atlanta Rd. SE	Smyrna	GA	30080	Cobb	12/15/2016	

60. There were over 250 other entities (chain pharmacies, retail pharmacies, hospitals, etc.) that dispensed opioids in Cobb County from 2006 to 2019. **Figure 4** shows a map of select pharmacies in Cobb County,<sup>62</sup> with a bubble size that corresponds to each pharmacy's total dosage units dispensed from 2006 to 2019, based on ARCOS data. **Exhibit 1** includes the same map expressed in MME, as well as maps for each individual year in the period.

<sup>62</sup> I included the stores for national chains CVS, Kroger, Rite Aid, Walgreen's, and Walmart, and included two other top dispensers in Cobb County, Lacey Drug and Thomas Drugs.

**Figure 4: Map of Select Pharmacies in Cobb County, 2006 to 2019 (Bubble Size Corresponds to Dosage Units)**



61. **Figure 5** shows that between 2006 and 2019, Publix had approximately 10.0% of the Cobb County opioid market share when measured in dispensed dosage units. This is less than CVS (15.2%), Walgreens (16.3%) and all other dispensers (35.1%). Publix's market share of opioid dispensing in terms of MME was even smaller, averaging approximately 7.1% of all opioid MME dispensed over this time period, which is less than CVS (13.4%), Lacey Drug (10.7%), Walgreens (13.7%) and all other dispensers (43.0%).

**Figure 5: Cobb County Opioid Dispensing Market Share, Dosage Units and MME, 2006 to 2019**

Chain	Dosage Units		MME	
	Value	Share	Value	Share
CVS	50,239,678	15.2%	1,010,275,392	13.4%
Kroger	29,844,833	9.1%	474,098,277	6.3%
Lacey Drug	20,377,875	6.2%	807,646,751	10.7%
Publix	33,004,369	10.0%	537,294,511	7.1%
Rite Aid	2,116,313	0.6%	34,541,844	0.5%
Thomas Drugs	8,858,675	2.7%	180,610,349	2.4%
Walmart	15,676,154	4.8%	224,032,498	3.0%
Walgreens	53,820,870	16.3%	1,035,097,102	13.7%
All Other Dispensers	115,809,231	35.1%	3,243,185,289	43.0%
<b>Total</b>	<b>329,747,998</b>		<b>7,546,782,014</b>	

**B. Publix Dispensed Lower Strength Opioids Than Average in Cobb County**

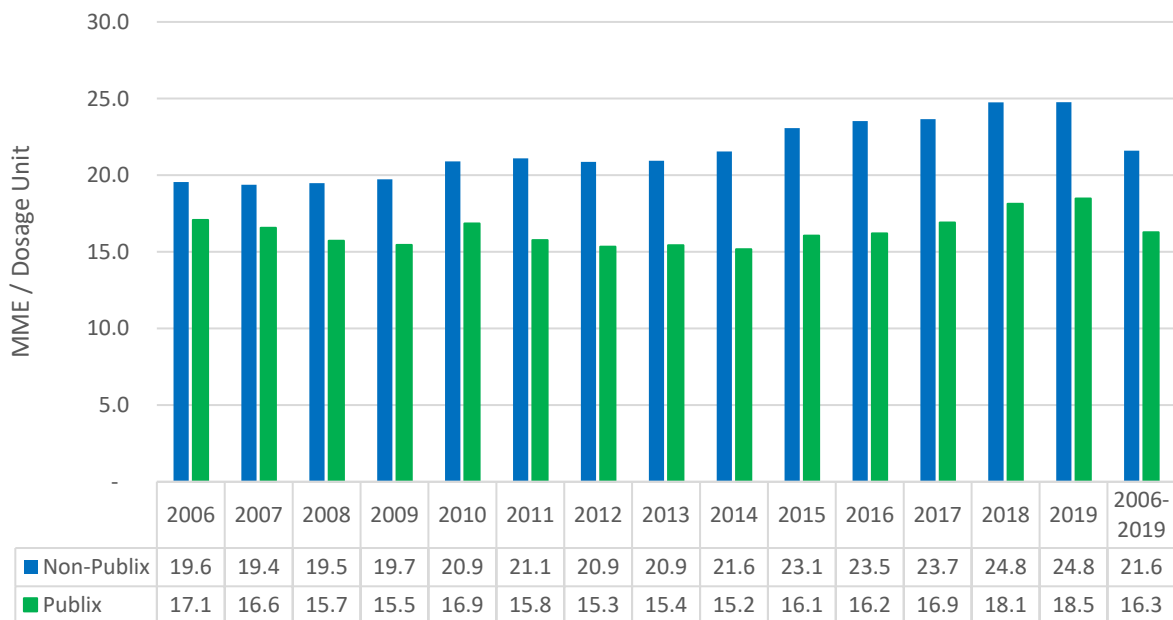
62. As discussed above, because Publix's MME market share (7.1%) is notably less than its dosage unit market share (10.0%),<sup>63</sup> this indicates that the dosage units dispensed by Publix pharmacies were concentrated in less powerful opioids compared to opioids dispensed on average by other dispensing entities – most notably, Lacey Drug and All Other Dispensers. Lacey Drug dispensed higher strength opioids on average, as indicated by its MME market share (10.7%) being notably higher than its dosage unit share (6.2%).

63. Another way to express drug strength is to evaluate MME per dosage unit ("MME/DU"). **Figure 6** shows a large differential in MME/DU between Publix and Non-Publix Chain and Retail pharmacies for all 14 opiates available in the ARCOS data. The measure for Publix is 16.3 from 2006 to 2019, which is 25% less than that of other Chain and Retail pharmacies over the same period (21.6).

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<sup>63</sup> It is approximately 30% less.

**Figure 6: Cobb County MME per Dosage Unit, Publix vs Other Chain and Retail Pharmacies, 2006 to 2019**



64. **Exhibit 2A** provides a comparison of opioids dispensed by Publix and All Other Chain and Retail pharmacies in Cobb County, by year and drug strength. **Exhibit 2B** provides the same comparison against Other Chain and Retail pharmacies in the United States. The top panel of Exhibits 2A and 2B shows the average dosage units dispensed by Publix for various hydrocodone and oxycodone strengths, as well as other opioids, the middle panel shows the averages for all other Chain and Retail pharmacies, and the bottom panel provides a comparison of the two panels.

65. The bottom panel of Exhibit 2A shows that within the oxycodone subsection, Publix stores on average dispensed lower strength prescriptions than similar outlets. For example, in 2011, the average Publix pharmacy dispensed 28% fewer dosage units of 5mg strength oxycodone per store than the average pharmacy in Cobb County. The top panel shows that the average Cobb County Publix pharmacy filled 11,196 dosage units for oxycodone 5mg, and the middle panel shows that the average Cobb County pharmacy filled 15,626 dosage units for oxycodone 5mg, resulting in the bottom panel showing a difference of -28%  $(11,196/15,626)-1$ ). However, at some of the higher strengths for the same opioid, such as oxycodone 30mg, these differences are even greater. Looking at the same year, the average Publix store dispensed 78% fewer dosage units of oxycodone 30mg than the average Cobb



County pharmacy (top panel for Publix shows 3,658 dosage units, divided by the middle panel for the average Cobb County pharmacy at 16,705 dosage units, minus 1, equals -78%).

66. In Exhibit 2B, comparing the average Publix pharmacy to the average pharmacy in the United States results in similar patterns. For instance, in 2014, the average Publix store dispensed 10,554 5mg oxycodone dosage units compared to the 22,701 dosage units filled at the average US pharmacy for 5mg oxycodone, a 54% difference. As before, there is an even greater difference when comparing Publix to the average US pharmacy for many of the higher dosage opioid prescriptions filled. Again looking at 2014, there were 70% fewer 30mg oxycodone dosage units dispensed at the average Publix than at the average US chain or retail pharmacy (2,504 dosage units in the top panel for Publix compared to 8,367 dosage units in the middle panel for the average US chain or retail pharmacy).

### **C. Publix Dispensed Fewer Opioids Per Store Than Other Dispensers in Cobb County**

67. Not only did Publix dispense lower strength opioids, but it also dispensed fewer opioids per store. The average Publix store in Cobb County dispensed 98,199 opioid dosage units per year, on average. Lacey's Marietta Pharmacy (DEA NO. BM1893634), by far the largest single retail dispenser located in Cobb County, dispensed 959,927 dosage units per year from its one central location – almost ten times that of the average Publix store. Other Chain and Retail pharmacies dispensed 142,634 dosage units per store per year, on average, in Cobb County, 179,299 dosage units per store per year, on average, in the State of Georgia, and 196,248 dosage units per store per year, on average, in the United States. **Exhibit 3A** provides an annual comparison of the average Publix per store compared to other pharmacies in Cobb County, the State of Georgia, and the United States, in terms of dispensed dosage units for the MDL Opioids. **Exhibit 3B** provides the same summary comparisons in terms of dispensed MME. **Exhibits 4A, 4B and 4C** provide graphs of the Publix per store average dispensing for the MDL Opioids, hydrocodone, and oxycodone, separately, compared to other pharmacies in Cobb County, the State of Georgia, and the United States. **Exhibits 4D, 4E and 4F** provide the same summary comparisons in terms of dispensed MME.



68. Exhibits 3 and 4 show that in all comparisons, Publix pharmacies dispensed far fewer opiates than other pharmacies, on average, in all years in terms of dosage units and MME. This is true at the county, state, and national levels.

**D. Opioids Made Up Less Than 5% of the Total Prescriptions Filled by Publix in Cobb County from 2007 to 2019 And That Percentage Declined Over Time**

69. Publix provided me with the Enterprise Data and CII Pull Reports, which includes a monthly store-level summary of all CII, or Schedule II, drugs as a percentage of all drugs filled by Publix from August 2012 through April 2021. I understand that Publix maintained the CII Pull Reports to monitor Schedule II prescription levels and rates.<sup>64</sup> I requested the Enterprise Data primarily to 1) validate the information in the CII Pull Reports starting in 2012 regarding CII prescriptions as a percent of overall store prescriptions; and 2) to calculate CII prescriptions as a percent of overall store prescriptions prior to 2012. Both sources indicate that opioids, and Schedule II drugs (which includes opioids and other drugs), constitute a small portion of total prescriptions filled by Publix pharmacies in Cobb County.

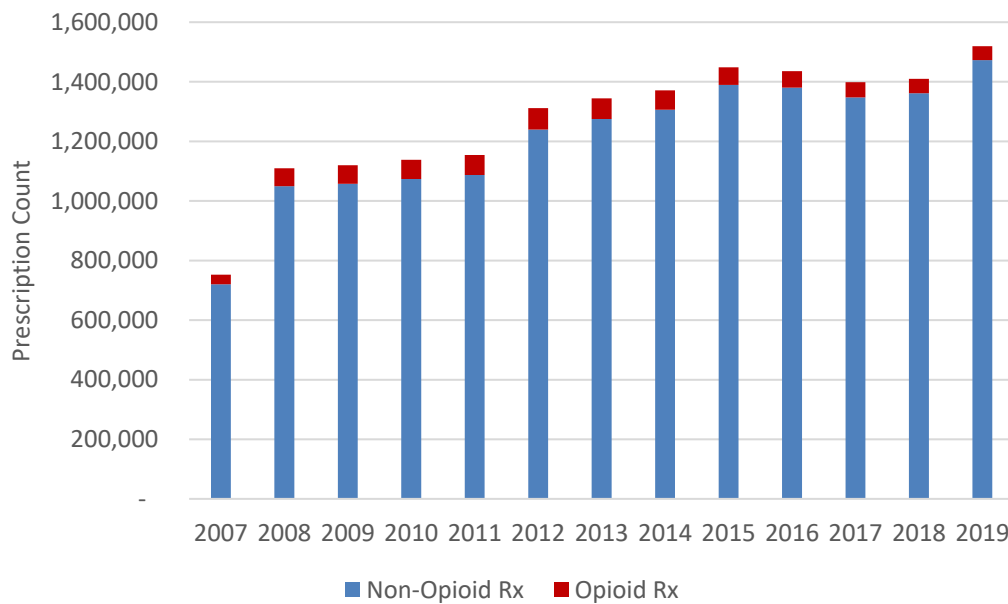
70. **Figure 7** shows the number of non-opioid prescriptions (the blue bars) and opioid prescriptions (the red bars) filled by Cobb County Publix each year from May 2007 through December 2019, according to the Enterprise Data.<sup>65</sup> The combined bars show the total prescriptions of any drug filled by Publix in Cobb County. The figure shows that opioid prescriptions were consistently a minor component of the total prescriptions filled at Publix over time.

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<sup>64</sup> See, Deposition of Fred Ottolino, 83:11 – 87:19; 30(B)(6) Deposition of Lindsay Burckhalter, 87:4 – 89:9; Deposition of Jillanne Smith, 262:10 – 272:6; Deposition of Leigh Ann Jacobson, 112:1 – 117:13. For example, Fred Ottolino, Publix’s former Vice President of Pharmacy, testified that Publix used the CII Reports to check if controlled substances were increasing at the store and company level: Deposition of Fred Ottolino, 231:5-25 (“Q. Was there ever a concern by you as vice president of pharmacy operations that the number of controlled substances that were being dispensed was increasing over time? . . . [THE WITNESS:] . . . we had parameters . . . that we had in place, especially that [CII Pull Report] that would indicate if there were issues on a store by store basis. So we would know if there needs to be a concern, but there was no global increase in C2s that were outstanding for the whole company, by percent of controls didn’t skyrocket over a year. There were stores that had more, stores that had less, stores that had more that were outliers, we looked at.”).

<sup>65</sup> The 2006 data are relatively incomplete with just a fraction of the records found in any other year, so this analysis omits that year. 2007 is also a partial year. My analysis extends through the end of 2019 to align with the period covered by ARCOS data and analyzed by Dr. McCann.

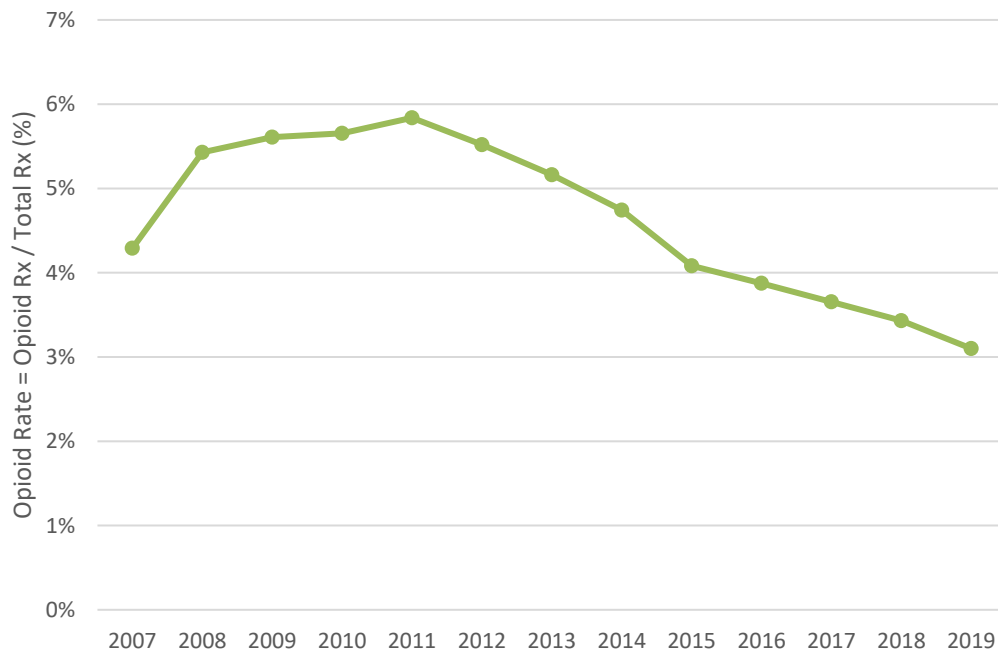
**Figure 7: Opioid Prescriptions and Total Prescriptions (Any Drug) Filled by Publix in Cobb County, 2007 to 2019**



71. **Figure 8** shows the same data, expressed as opioid prescriptions as a percentage of total prescriptions filled (“Opioid Rate”). Overall, opioids comprised less than 5% of total prescriptions filled over the entire window. The Opioid Rate peaked in 2011, at 5.8% and trended downward in every subsequent year, ending at 3.1% of all prescriptions in 2019. Viewed in conjunction with Figure 7 above, Figure 8 indicates that beginning in 2011, the growth in non-opioid prescriptions filled outstripped the growth in opioid prescriptions filled at Publix pharmacies.<sup>66</sup> **Exhibit 5** shows non-opioid prescriptions, opioid prescriptions and the Opioid Rate for each of the 25 Publix stores in Cobb County separately. Notably, the Opioid Rate never exceeded 9% for any year for any of the 25 Publix stores pharmacies in Cobb County.

<sup>66</sup> Raw prescription counts can change for myriad reasons that are unrelated to Plaintiff’s allegations. For instance, the customer base and prescription counts for a store could rise if a nearby competitor store closes; or the customer base and prescription counts for a chain can change if it opens or closes a store. To control for overall prescription counts, I evaluate opioid prescriptions as a percentage of total prescriptions.

**Figure 8: Opioid Prescriptions as a Percentage of Total Prescriptions Filled by Publix Stores in Cobb County, 2007 to 2019**



72. Next, I evaluate the same data by DEA Schedule. **Figure 9** shows a detailed disaggregation of the total number of prescriptions filled by Publix stores in Cobb County by DEA drug schedule from 2006 to 2022 according to the Enterprise Data.<sup>67</sup> Recall from Section V that 13 of the 14 MDL Opioids (and other drugs) fall under Schedule II, with buprenorphine in Schedule III, and HCPs in Schedule III prior to October 2014.<sup>68</sup> The increase in Schedule II prescriptions begins in 2014, which coincides with the DEA’s rescheduling of HCPs to Schedule II and is not indicative of a change in opioid prescriptions attributable to Publix, a fact made clear in Figure 8.

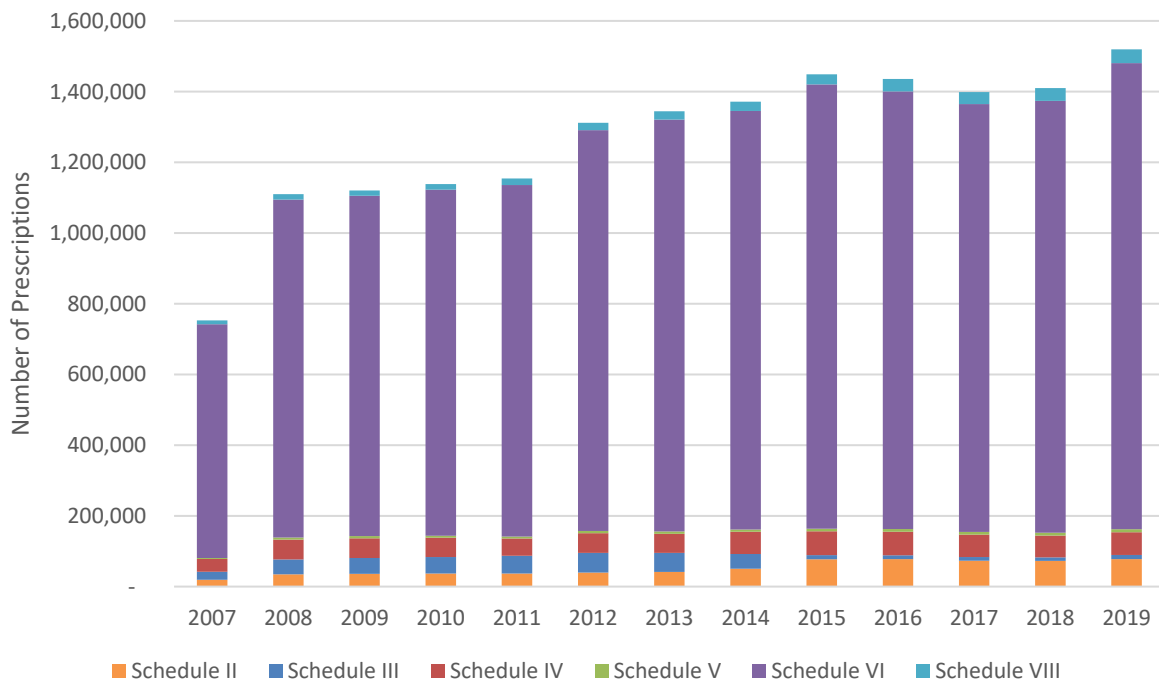
73. Notably, Schedule VI, which includes allergy medications (e.g., Allegra, Zyrtec) decongestants, antibiotics (penicillin), and statins (e.g., Lipitor) make up nearly 90% of all prescriptions filled at Publix, and the overall annual increases in total prescriptions are

<sup>67</sup> The DEA classifies drugs from Schedule I to Schedule V based on their potential for abuse and medical use. There is no official “Schedule VI” or “Schedule VIII” classification, even though Publix uses those classifications internally in its Enterprise Data. There is one transaction labeled “Schedule I” which is omitted from this chart since the category is too small to see.

<sup>68</sup> According to the Enterprise Data, from November 2014 to December 2019, buprenorphine prescriptions represent 2.6% of all opioid prescriptions, and non-opioid prescriptions represent 42.4% of all Schedule II prescriptions filled by Publix stores in Cobb County.

largely attributable to increases in Schedule VI prescriptions. For example, the steady increase in the total number of prescriptions filled from 2008 to 2019 is largely due to the growth in Schedule VI prescriptions filled, which increased by over 18%, from 1.3m to 1.5m, indicating growing demand for Schedule VI drugs and/or a growing patient population served by Publix stores in Cobb County.

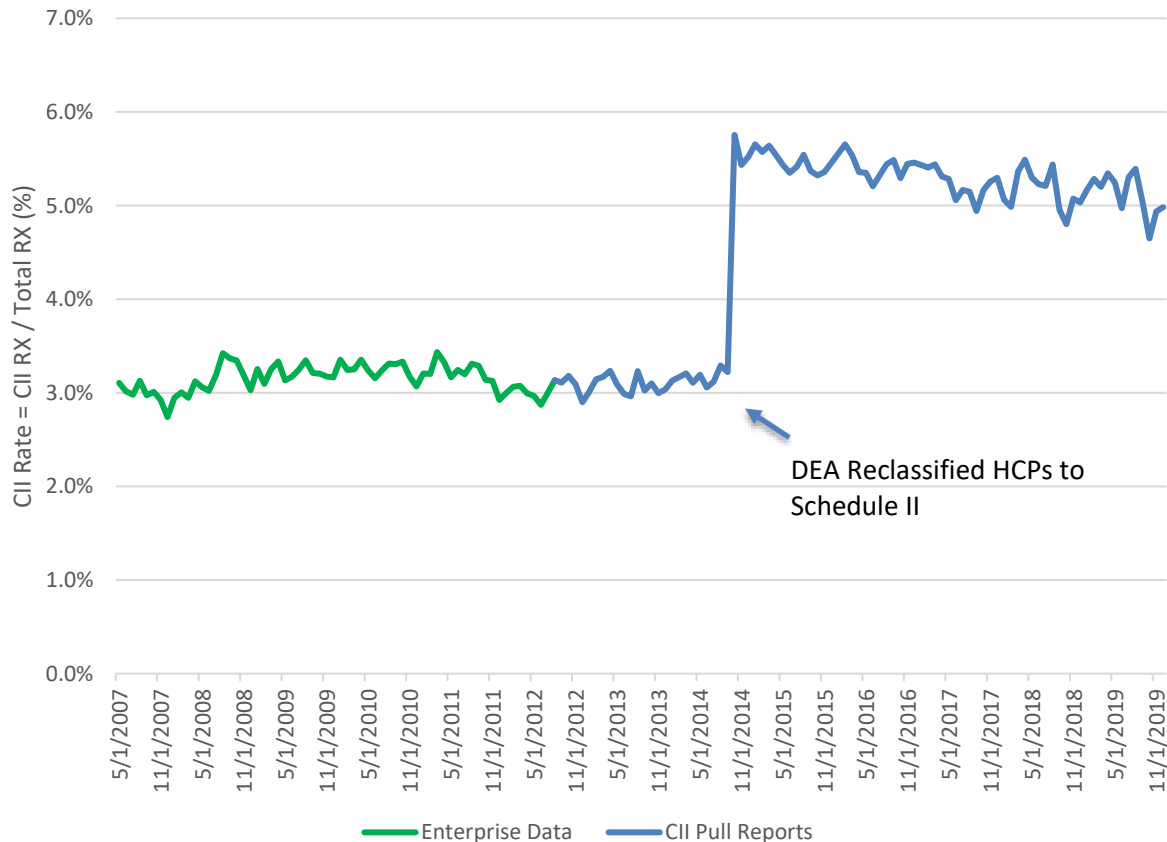
**Figure 9: Prescriptions Filled at Publix in Cobb County Pharmacies, by DEA Drug Schedule, 2007 to 2019**



74. I understand that Publix monitored Schedule II prescriptions at the month and store level in its “CII Pull Reports.” The CII Pull Reports include a “CII Rate” – that is, the number of Schedule II prescriptions divided by the total number of prescriptions. **Figure 10** shows the monthly CII Rate for the 25 Publix stores in Cobb County, based on CII Pull Reports (where available) and supplemented with Enterprise data, from May 2007 to December 2019. The CII Rate fluctuates between 3 and 3.5 percent from May 2007 through September 2014. The increase after October 2014 is attributable to the October 2014 DEA reclassification of hydrocodone combination products (HCPs). After that, the CII Rate fluctuates between approximately 5 and 5.5 percent. The CII Rate is not directly comparable to

the Opioid Rate described above. This is because Schedule II contains non-opioid drugs and excludes buprenorphine (one of the MDL Opioids, which is a Schedule III drug).

**Figure 10: CII (or Schedule II) Prescriptions as a Percentage of All Prescriptions (Any Drug) Filled by Publix Pharmacies in Cobb County, 2007 to 2019**



75. **Exhibit 6** presents the monthly CII Rate for the 25 stores in Cobb County individually. It shows that for most stores, the CII Rate remains relatively flat over time. For some stores, however, the CII Rate declines, and, for others, the CII Rate increases or exhibits more fluctuation. Notably, the CII Rate never exceeded 8% for any month for any of the 25 Publix stores pharmacies in Cobb County.

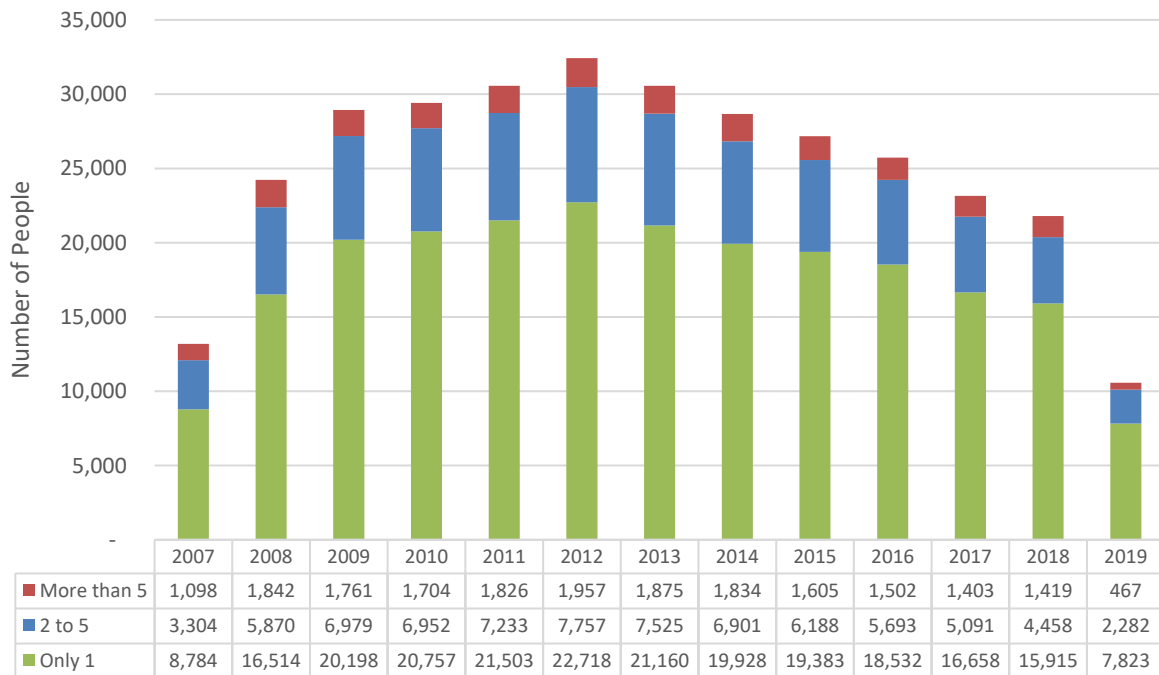
**E. The Majority of Patients That Filled Opioid Prescriptions at Publix in Cobb County Filled Only One Opioid Prescription**

76. **Figure 11** shows the number of people receiving opioid prescriptions per year, by prescription frequency, based on the Publix Dispensing Data analyzed by Dr. McCann.

Publix dispensed opioids to approximately 26,000 people per year in Cobb County, on average. Of that, 70.3% (18,500) received only one opioid prescription per year, 23.4% (6,163) received two to five opioid prescriptions per year, and 6.3% (1,600) received more than five opioid prescriptions per year. Notably, 1,600 is less than 0.2% of the population of Cobb County.<sup>69,70</sup>

**Figure 12** shows the same data on a per capita basis.

**Figure 11: People Filling Opioid Prescriptions Each Year at Publix Cobb County, by Prescription Frequency, 2007 to 2019**



<sup>69</sup> The population of Cobb County was 679,699 in 2006 and 760,141 in 2019. I use the average (720,192) in the calculation. U.S. Census Bureau. “Annual Estimates of the Resident Population for Counties of Georgia: April 1, 2000 to July 1, 2009.” Accessible at <https://www2.census.gov/programs-surveys/popest/tables/2000-2009/counties/totals/co-est2009-01-13.xls>; U.S. Census Bureau. “Annual Estimates of the Resident Population for Counties in Georgia: April 1, 2010 to July 1, 2019.” Accessible at <https://www2.census.gov/programs-surveys/popest/tables/2010-2019/counties/totals/co-est2019-annres-13.xlsx>.

<sup>70</sup> The figures provided in this analysis are based on the location of the Publix Cobb County pharmacies. Over 80% of the prescriptions filled at Publix Cobb County were for customers who also live in Cobb County (=537,993/669,828). Of Cobb County residents who used Publix pharmacies, 94.7% of their prescriptions were filled at Publix Cobb County (=537,993/567,972).

**Figure 12: People Filling Opioid Prescriptions Each Year at Publix Cobb County, by Prescription Frequency, Per Capita, 2007 to 2019**

Year	Number of People				Cobb County Population	Per Capita			
	Zero	Only 1	2 to 5	More than 5		Zero	Only 1	2 to 5	More than 5
2007	678,310	8,784	3,304	1,098	<b>691,496</b>	98.1%	1.3%	0.5%	0.2%
2008	680,596	16,514	5,870	1,842	<b>704,822</b>	96.6%	2.3%	0.8%	0.3%
2009	685,754	20,198	6,979	1,761	<b>714,692</b>	96.0%	2.8%	1.0%	0.2%
2010	660,082	20,757	6,952	1,704	<b>689,495</b>	95.7%	3.0%	1.0%	0.2%
2011	665,945	21,503	7,233	1,826	<b>696,507</b>	95.6%	3.1%	1.0%	0.3%
2012	673,890	22,718	7,757	1,957	<b>706,322</b>	95.4%	3.2%	1.1%	0.3%
2013	685,457	21,160	7,525	1,875	<b>716,017</b>	95.7%	3.0%	1.1%	0.3%
2014	698,880	19,928	6,901	1,834	<b>727,543</b>	96.1%	2.7%	0.9%	0.3%
2015	711,876	19,383	6,188	1,605	<b>739,052</b>	96.3%	2.6%	0.8%	0.2%
2016	722,451	18,532	5,693	1,502	<b>748,178</b>	96.6%	2.5%	0.8%	0.2%
2017	729,497	16,658	5,091	1,403	<b>752,649</b>	96.9%	2.2%	0.7%	0.2%
2018	734,278	15,915	4,458	1,419	<b>756,070</b>	97.1%	2.1%	0.6%	0.2%
2019	749,569	7,823	2,282	467	<b>760,141</b>	98.6%	1.0%	0.3%	0.1%

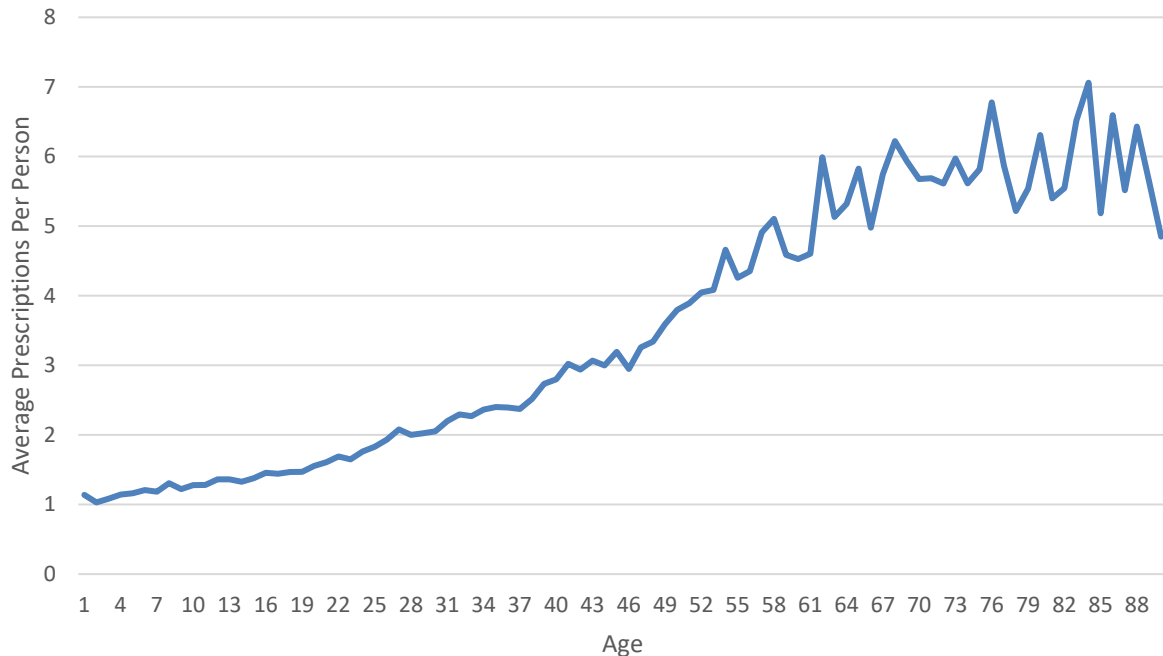
77. Across the 13-year period, from 2007 to 2019, 59% of patients that received an opioid from Publix only ever received one opioid prescription, 32% received between two and five, and 9% received more than five opioid prescriptions. Five or fewer opioid prescriptions over a 13-year period is a maximum of one every 2.5 years, on average. Of the patients receiving an opioid prescription, 91.17% also received a prescription for something other than an opioid, a muscle relaxer, or a benzodiazepine. Further, of that percentage receiving both an opioid and something other than an opioid, muscle relaxer or a benzodiazepine, 78.41% received the non-opioid prescription prior to the date they received their first opioid prescription.

**F. The Majority of the Patients That Filled Opioid Prescriptions at Publix in Cobb County Were Over 45 Years Old**

78. Nearly two-thirds of the opioid prescriptions filled by Publix in Cobb County were for patients over 45 years old. **Figure 13** shows the average number of prescriptions filled per person, by age from 2006 to 2019. As the chart shows there is a strong positive correlation between patient age and the number of opioid prescriptions filled. As I discuss in greater detail

in the next section, this is the same age group more likely to be at-risk for health conditions that rely on opioid treatments, such as cancer or chronic pain.

**Figure 13: Average Opioid Prescriptions per Person Filled at Publix in Cobb County, by Age, 2006 to 2019**



79. Both Dr. McCann and Ms. Keller had this data available to them yet did not discuss patient age in their respective reports.

**VIII. Dr. McCann's Red Flag Analysis is Not Statistically Valid and is Biased to Over-Flag Prescriptions for Older Patients and Uninsured Patients. Despite This, The Majority of Opioid Prescriptions Filled by Publix Pharmacies in Cobb County Did Not Receive a Red Flag Under Dr. McCann's Analysis.**

80. Dr. McCann applies 14 red flag computations, or algorithms, from Plaintiff's expert Carmen Catizone to Publix's dispensing data. I attempted to locate materials in the public domain regarding these computations in order to understand further their intent, purpose, and application over time that might inform my analysis. However, I could not locate information regarding the use of these computations and neither Mr. Catizone nor Dr. McCann cites to authoritative sources such as the DEA or CDC as the basis for their red flag



attributes.<sup>71</sup> The algorithms, discussed by Mr. Catizone and executed by Dr. McCann, analyze Publix dispensing data and “flag” opioid prescriptions if, for instance, the patient travelled more than 25 miles to the provider, the patient was dispensed an opioid and a benzodiazepine within 30 days of one another, or the patient “paid in cash” (which means “out-of-pocket” rather than using a third-party payer, like insurance). Dr. McCann finds that of the 669,828 opioid prescriptions filled by Publix in Cobb County from 2006 to 2019, less than half (45.5%) reflected a red flag attribute ( $305,069/669,828 = 45.5\%$ ).

81. The 45.5% rate of red flagged prescriptions reported lacks meaningful statistical context without comparison to benchmarks, such as the expected rate among similar pharmacy populations using Mr. Catizone’s criteria or the expected rate among a baseline/control population of prescriptions known to be properly dispensed by a similar pharmacy population. Without understanding the expected distribution of red flag rates across comparable pharmacies, we cannot determine whether this rate is unusually high or low, or otherwise meaningful.<sup>72</sup> Moreover, Plaintiff’s experts have made no attempt whatsoever to demonstrate any reliable statistical link connecting the proportion of red flagged prescriptions from within a pharmacy’s total opioid prescription set to any rate or number of improperly dispensed or “illegitimate” prescriptions filled, let alone the rate/number they *intimate, without directly asserting*, should not have been filled. Not only have Plaintiff’s experts not demonstrated a link, but they agreed that they do not have an opinion regarding the number or percent or

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<sup>71</sup> McCann Report ¶¶ 186-187. In his deposition, Dr. McCann states that he ran his red flag analysis based on communication with Mr. Catizone (McCann Deposition at 10:11 – 12:6, 24:11-16). The red flags as discussed in the Catizone General Report are based on Mr. Catizone’s opinions from his review of various data points. For instance, the Catizone General Report n. 51 quotes a 2010 Court decision regarding customers traveling ‘hundreds of miles roundtrip’ but Mr. Catizone uses 25 miles based on certain states’ telemedicine rules (Catizone General Report pp. 26-29). In his justifications for other red flag guidance (Catizone General Report pp. 22-43), Mr. Catizone cites to contemporary publications (e.g., Catizone General Report p. 37 citing a 2016 article), showing that the precise criteria for red flags changed over time, since 2006. I independently searched the DEA and CDC websites and found nothing about the specific red flags calculated by Dr. McCann and referenced in the Catizone General Report.

<sup>72</sup> Freedman, David, Robert Pisani, and Roger Purves. *Statistics*. New York: W.W. Norton, 1978, p. 95 (“Usually, there is no way to detect bias just by looking at the measurements themselves; instead, they have to be compared to an external standard or to theoretical predictions.”); Kaye, David H. and David A. Freedman. “Reference Guide on Statistics” in *Reference Manual on Scientific Evidence* 3<sup>rd</sup> ed. Federal Judicial Center, 2011, pp. 213-302, available at [http://www.nap.edu/catalog.php?record\\_id=13163](http://www.nap.edu/catalog.php?record_id=13163) (“...it is helpful to find a benchmark that puts the figures into perspective.”).

quantity, if any, of the flagged prescriptions that are illegitimate and should not have been dispensed.<sup>73</sup> Therefore, without appropriate benchmarks and deeper statistical analysis, Plaintiff's experts can reach **no** definitive conclusions about the significance of the 45.5% rate observed.<sup>74</sup> It could potentially represent a normal or even low rate within the broader pharmacy context, all or some portion of which might be for legitimate prescriptions. The lack of essential statistical rigor undermines the reliability of any conclusions drawn from this figure.

82. Dr. McCann's analysis contains examples of overflagging or false positives. One glaring indication of such overflagging is Dr. McCann's own "modified methodology," which demonstrates that some of his algorithms are over-aggressive.<sup>75</sup> Flags 3, 4, 7, and 13 are based on combinations of prescriptions. Flags 3 and 4, for instance, are based on opioid prescriptions being dispensed with overlapping days of supply. Dr. McCann's original algorithms flag both prescriptions, even though at the time the first one was filled, there was no reason to flag it, and by his logic, for the pharmacy to perform greater due diligence on it. These corrections affect over 33,000 prescriptions and reduce his overall flagging rate by 4.9 percentage points, from 45.5% to 40.6%. With these adjustments, nearly 60% of Publix opioid prescriptions do not receive a single flag. His corrected analysis raises concern as to why his Report includes results from the original algorithms in the first place.<sup>76</sup>

83. Furthermore, Dr. McCann's red flag algorithms are heavily biased to flag the prescriptions of uninsured patients and older patients. From a statistical perspective, ignoring uninsurance rates as an explanatory factor for paying out-of-pocket, or ignoring age as an explanatory factor for opioid prescription usage, creates what statisticians refer to as

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<sup>73</sup> May 30 Catizone Deposition at 141:1-13, 146:1-14.

<sup>74</sup> Mr. Catizone makes a number of definitive statements without statistical evidence. For instance, the Catizone Specific Report (p. 19) states that Publix and Kroger did not perform effective due diligence on over 90% of the sample prescriptions reviewed, but Mr. Catizone never presents the calculations to support this figure. Without the appropriate backup data and calculations, Mr. Catizone's conclusions are unverifiable and untestable. Mr. Catizone not only fails to provide a point estimate from the sample of prescriptions he analyzed, he also fails to provide the confidence interval associated with the point estimate, and fails to explain what statistical inferences can be made to the population of Publix prescriptions. Moreover, Mr. Catizone ignores his 90-95% calculation and asserts that 100% of the red flagged prescriptions should not have been dispensed (May 30 Catizone Deposition at 87:1-5). Mr. Catizone provides no statistical analysis of how his red flags align with the percentage of prescriptions written for a legitimate medical purpose.

<sup>75</sup> McCann Report ¶ 191; McCann Report Table 84.

<sup>76</sup> None of Plaintiff's experts reference this lower, corrected, red flag rate.

“confounding effects” or in this case, a misidentification of potentially problematic prescriptions.<sup>77</sup> I refer to this bias as “overflagging” or “false positives.” People without insurance will pay for prescriptions out of pocket because that is their one option. If the algorithm flags out of pocket payees without the context of whether the payee has insurance or not, it will lead to a higher number of false positives among the uninsured population. Likewise, as I describe in greater detail below, older patients are likely to receive more opioid prescriptions due to chronic conditions associated with aging. If the algorithms flag such prescriptions without this relevant context, it will lead to false positives among older demographics. Counsel for Publix asked me to examine the statistical properties of Dr. McCann’s red flag algorithm as they relate to age and insurance rates.

84. My analysis shows that Dr. McCann’s red flag rate for Flag 14 (patient paid for the prescription out-of-pocket rather than with a third-party such as insurance) is strongly positively correlated with uninsurance rates in Cobb County from 2006 to 2019.<sup>78</sup> The algorithm is applied without considering whether the prescription recipient has insurance. It is expected that uninsured patients will pay out of pocket. Removing Flag 14 reduces his overall flagging rate by up to 9.9 percentage points, from 40.6% to 30.7%.

85. Furthermore, my analysis shows that the flagging rate for several of Dr. McCann’s red flag algorithms are strongly positively correlated with age, meaning as the age of the patient increases, the likelihood of a prescription receiving a flag also increases. This is true for his most prominent flags, which are Flag 7 (patient was dispensed an opioid and a benzodiazepine within 30 days of one another), Flag 13 (a patient was dispensed more than 210 “days of supply” of all opioids combined in a 6-month period), and Flag 3 (patient was dispensed opioid prescriptions with overlapping days of supply that were written by two or more prescribers).<sup>79</sup> Other factors also exhibit a strong positive correlation with age, including

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<sup>77</sup> Elwood JM, ed. *Causal Relationships in Medicine*. Oxford University Press, 1988. pp. 84-96; Pourhoseingholi, MA et al. “How to Control Confounding Effect by Statistical Analysis.” *Gastroenterology and Hepatology From Bed to Bench*, 2012, 5(2), pp. 79-83, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4017459/>.

<sup>78</sup> Flag 14 has a correlation coefficient with uninsurance rates over time of 0.88. Correlation measures the direction and strength of the linear association between two quantitative variables, ranging from -1 to 1. Bock, David E. et al. *Stats: Modeling the World* 5th ed. Pearson, 2019, pp. 152-156.

<sup>79</sup> Flags 7, 13, and 3 have correlation coefficients with age of 0.91, 0.79, and 0.71, respectively. Correlation measures the direction and strength of the linear association between two quantitative

benzodiazepine use and health issues like cancer, chronic pain, surgery, and other conditions with treatments that include the use of opioids to manage pain.<sup>80,81</sup>

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variables, ranging from -1 to 1. Bock, David E. et al. *Stats: Modeling the World* 5th ed. Pearson, 2019, pp. 152-156.

<sup>80</sup> Maust, Donovan T. et al. “Benzodiazepine Use and Misuse Among Adults in the United States.” *Psychiatric Services*, 2019, 70(2), pp. 97-106 (“By age, the highest rate of overall benzodiazepine use was among adults ages 50-64.”); “Age and Cancer Risk.” National Cancer Institute. <https://www.cancer.gov/about-cancer/causes-prevention/risk/age> (“Advancing age is the most important risk factor for cancer overall and for many individual cancer types. The incidence rates for cancer overall climb steadily as age increases, from fewer than 25 cases per 100,000 people in age groups under age 20, to about 350 per 100,000 people among those aged 45–49, to more than 1,000 per 100,000 people in age groups 60 years and older”); Ricard, Michaela S., et al. “Chronic Pain Among Adults — United States, 2019-2021.” *Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report*, 2023, 72(15), pp. 379-385 (“...the prevalence of pain is reported to vary by age (p. 380).”). Rates of chronic pain and high-impact chronic pain are at least twice as high for age groups 45 and above compared to those aged 25-44, and highest for those aged 85 or above (p. 382); Knoedler, Samuel et al. “The Surgical Patient of Yesterday, Today and Tomorrow – A Time Trend Analysis Based on a Cohort of 8.7 Million Surgical Patients.” *International Journal of Surgery*, 2023, 109(9), pp. 2631-2640 (“An age-related and frailty-related decline in health exacerbates surgical vulnerability and predisposes to complications.”).

<sup>81</sup> See, for example, Kumar, Senthil P. “Cancer Pain: A Critical Review of Mechanism-based Classification and Physical Therapy Management in Palliative Care.” *Indian Journal of Palliative Care*, 2011, 17(2), pp. 116-126 (“World Health Organization (WHO) analgesic ladder management is currently the most accepted and widely employed pain management strategy in patients with cancer pain. Despite their well-known adverse effects ranging from local to general in bodily distribution, opioids are still the most recommended drug therapy of choice for patients with cancer pain.”); Mestdagh, François et al. “Cancer Pain Management: A Narrative Review of Current Concepts, Strategies, and Techniques.” *Current Oncology*, 2023, 30(7), pp. 6838-6858 (“Opioids still remain the mainstay of moderate to severe cancer pain treatment. Consequently, skilled use of opioid analgesics is crucial to adequate pain relief, taking into account their potential harm.”); “Health.” *Johns Hopkins Medicine*. <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/opioids> (“Prescription opioids, when legally prescribed by a doctor and used as directed, can relax the body and relieve symptoms of an illness, an injury or a surgical procedure, such as: Post-surgical pain; Severe pain due to trauma or disease.”); “Pain Control After Surgery.” *Cleveland Clinic*. <https://my.clevelandclinic.org/health/articles/11307-pain-control-after-surgery> (stating that opioids post-surgery are effective pain relievers for moderate to severe pain); “Safe and Effective Pain Control After Surgery.” *American College of Surgeons Division of Education*. [https://www.facs.org/media/5nlfjo3c/safe\\_pain\\_control\\_adult.pdf](https://www.facs.org/media/5nlfjo3c/safe_pain_control_adult.pdf) (“For complex procedures, your pain plan may also include opioids.”); Reid, M. Carrington, Christopher Eccleston, and Karl Pillemer. “Management of Chronic Pain in Older Adults.” *British Medical Journal* 350, 2015; Fallon, Elizabeth A. et al. “Prevalence of Diagnosed Arthritis — United States, 2019-2021.” *Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report*, 72(41), 2023, pp. 1101-1107 (“Arthritis includes approximately 100 conditions that affect the joints and surrounding tissues. If not managed properly, arthritis can result in severe pain, activity limitations, and disability. Adults with arthritis have disproportionate rates of anxiety and depression and received 55.3% of all-cause prescription opioids dispensed in the United States in 2015.”).

86. This age bias plays out further in the data. Not only are flagging *rates* higher for older patients but flagging *levels* (or counts) are also higher. Notably, Dr. McCann's red flags are heavily concentrated in older patients – i.e., 75% of his red flagged prescriptions were for patients over 40 years old. The distribution of Dr. McCann's red flags is inconsistent with actual opioid risk distribution observed in society: Treatment Episode Dataset (TEDS) data show opioid-related hospital admissions in Cobb County predominately involve younger patients in their 20s and 30s<sup>82</sup> and opioid death rates in Georgia are more evenly distributed by age.<sup>83</sup>

87. Based on these facts, it is expected that older demographics will get more opioid prescriptions and not be flagged for them at a higher rate than younger demographics. If the point of Dr. McCann's algorithm is to detect potentially problematic prescriptions, the flagging rates should not increase as a function of age – especially when, as I have shown, older patients are more likely to receive opioids for legitimate health reasons. Nor should the distribution of flagging levels (or counts) skew toward the older demographics when the distribution of hospital admissions by age is concentrated in a younger population. Removing the flags with the highest correlation with age (Flags 3, 7, and 13) further reduces his overall flagging rate by up to 12.8 percentage points, from 30.7% to 17.9%.

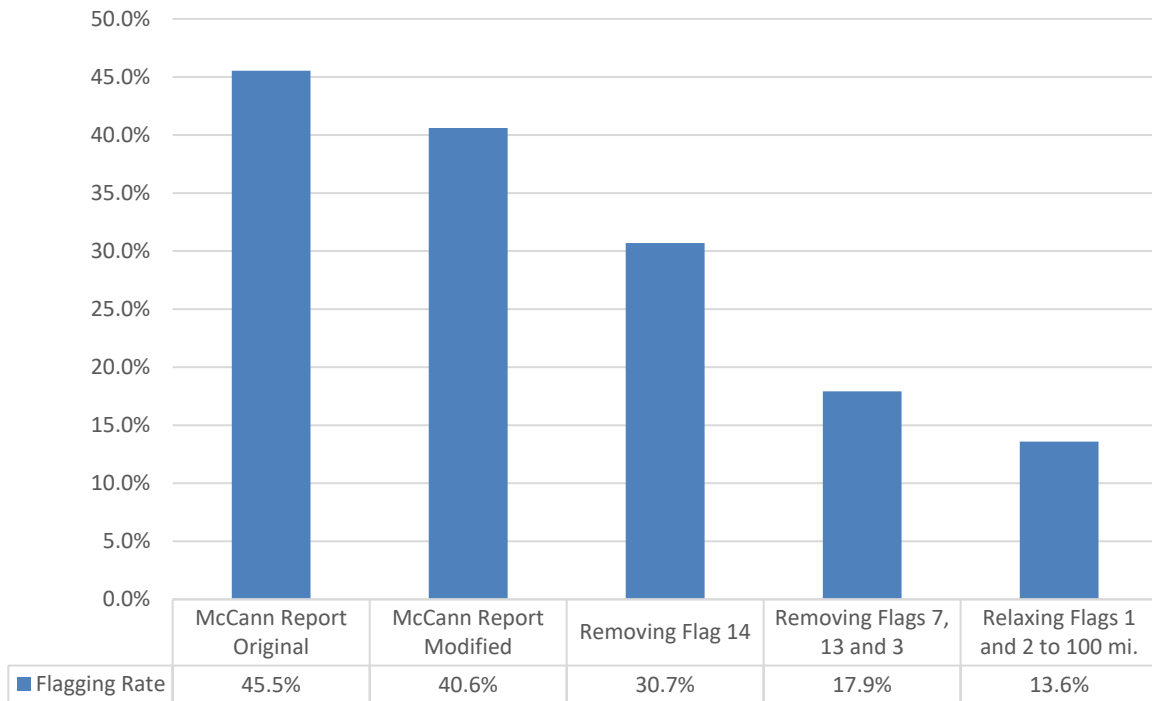
88. Furthermore, Counsel for Publix asked me to recalculate Flags 1 and 2 (patient traveled more than 25 miles to the pharmacy or provider) under various mileage thresholds through 100 miles. Relaxing the mileage threshold for Flags 1 and 2 from 25 miles to 100 miles further reduces his overall flagging rate by up 4.3 percentage points, from 17.9% to 13.6%. With these adjustments, as much as 86% of Publix opioid prescriptions would not receive a single flag. **Figure 14** provides the impact of each red flag adjustment.

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<sup>82</sup> Treatment Episode Dataset Admissions (TEDS-A), Substance Abuse and Mental Health Services Administration (SAMHSA), accessible at <https://www.samhsa.gov/data/data-we-collect/teds-treatment-episode-data-set>. Limited to records where heroin or other opiates or synthetics were identified as the primary substance use.

<sup>83</sup> Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 1999-2020 on CDC WONDER Online Database, released in 2021. [MCD-ICD-10 Codes: T40.2, T40.3. State: Georgia(13). UCD-Drug/Alcohol Induced Causes: X40-X44, X60-X64, X85, Y10-Y14. Year: 2006-2019. Group By: Single-Year Ages].

**Figure 14: McCann Report Overall Red Flag Rate, With Adjustments, for the 669,828 Opioid Prescriptions Filled by Publix Pharmacies, 2006 to 2019**



89. The adjustments are not comprehensive of all misidentification errors. Furthermore, as mentioned above, since neither Dr. McCann nor Mr. Catizone provide a statistical benchmark against which to compare the adjusted flagging rates, there is no way to understand whether the rates are higher, lower, or in line with expectations (i.e., statistically meaningful). I describe each flaw in Dr. McCann's red flag analysis in detail as well as provide additional analyses as requested by Counsel for Publix in the sections that follow.

**A. Dr. McCann Applies a Red Flag Analysis as Informed by Plaintiff's Expert Carmen Catizone. Neither Mr. Catizone nor Dr. McCann Cites to an Authoritative Source Such as the DEA or CDC as the Basis for the Analysis.**

90. Dr. McCann's flagging methodologies are not based on standard federal compliance rules or established guidelines. Rather, in his deposition, Dr. McCann states that he ran his red flag analysis based on communication with Mr. Catizone.<sup>84</sup> I could not locate information regarding the use of these computations to understand further their intent, purpose,

<sup>84</sup> McCann Deposition at 10:11 – 12:6, 24:11-16. See n. 71.



and application over time that might inform my analysis. Neither Mr. Catizone nor Dr. McCann cites authoritative sources such as the DEA or CDC as the basis for their red flag analysis.

91. Dr. McCann describes his analytical approach as follows:

I report the results of the 14 algorithms two ways. First, I report only the specific dispensed prescriptions or sets of dispensed prescriptions identified by the algorithm. I also report the specific dispensed prescriptions or sets of dispensed prescriptions identified by the algorithm and any opioid prescription thereafter either dispensed to the patient denoted with a “P” or written by the prescriber denoted with a “D”.<sup>85</sup>

92. He defines each of the 14 red flag computations as follows:

- Red Flag 1: An opioid was dispensed to a patient who traveled more than 25 miles to visit the pharmacy. The distance here is calculated from the center of the patient's zip code to the center of the pharmacy's zip code. [P]
- Red Flag 2: An opioid was dispensed to a patient who traveled more than 25 miles to visit their prescriber. The distance here is calculated from the center of the patient's zip code to the center of prescriber's zip code. [P, D]
- Red Flag 3: Patient was dispensed opioid prescriptions with overlapping days of supply that were written by two or more prescribers. [P]
- Red Flag 4: Patient was dispensed opioid prescriptions with overlapping days of supply at two or more pharmacies. [P]
- Red Flag 5: Patient was dispensed an opioid, a benzodiazepine, and a muscle relaxer for overlapping days of supply. [P]
- Red Flag 6: Patient was dispensed an opioid, a benzodiazepine, and a muscle relaxer on the same day, and all the prescriptions were written by the same prescriber. [P, D]
- Red Flag 7: Patient was dispensed an opioid and a benzodiazepine within 30 days of one another. [P]
- Red Flag 8: Patient was dispensed an opioid and a benzodiazepine on the same day, and both prescriptions were written by the same prescriber. [P, D]
- Red Flag 9: Patient was dispensed two short-acting (or immediate release) opioid drugs on the same day. [P]
- Red Flag 10: Patient was dispensed an opioid prescription of over 200 MME per day in or before 2018 or over 90 MME per day after 2018. [P, D]
- Red Flag 11: An opioid was dispensed to at least 4 different patients on the same day, and the opioid prescriptions were for the same base drug, strength, and dosage form and were written by the same prescriber. [P, D]
- Red Flag 12: An opioid prescription was refilled more than 5 days before the patient's previous prescription should have run out. [P]

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<sup>85</sup> McCann Report ¶ 186, including n. 38.



- Red Flag 13: A patient was dispensed more than 210 “days of supply” of all opioids combined in a 6-month period. [P]
- Red Flag 14: A patient was dispensed an opioid and paid in cash. [P]<sup>86</sup>

93. After defining each red flag, Dr. McCann presents tables for Kroger and Publix separately, showing the frequency of each flag. First, he presents what he labels “All Prescriptions,” where all means the sum of the MDL Opioids (excluding buprenorphine), benzodiazepines, and muscle relaxers.

94. The McCann Report tables show the number and percentage of opioid transactions flagged for any of the 14 issues and then for each of the 14 issues separately. The first set of tables present “nonrecurrent” flags, which simply means that a flag is related only to a single transaction, or “only the specific dispensed prescriptions or sets of dispensed prescriptions identified by the algorithm.”<sup>87</sup>

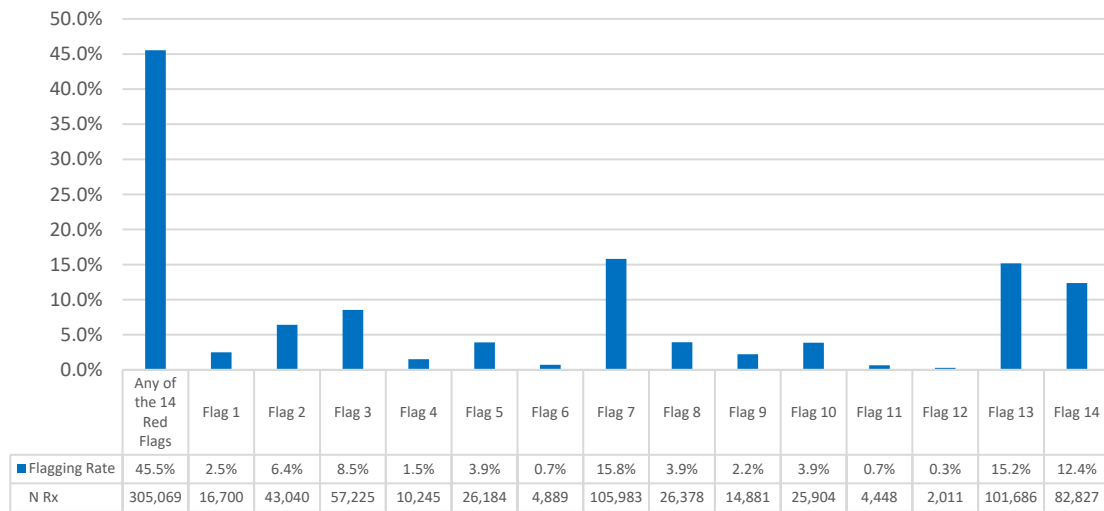
95. Despite the flaws in his red flag algorithms, as I discuss in detail in the sections that follow, Dr. McCann finds that over half of the opioid prescriptions filled by Publix between 2006 and 2019 do not receive a red flag at all. **Figure 15** shows the flagging rate for his nonrecurrent analysis. The first bar shows that, of the 669,828 opioid prescriptions filled by Publix, less than half (45.5%) received at least one red flag ( $305,069/669,828 = 45.5\%$ ). This reflects that 55.5% ( $1-45.5\%$ ) did not receive a red flag. The next bar shows that 2.5%, or 16,700 of the 669,828 opioid prescriptions received Flag 1, and so on. Under his analysis, a single transaction can be marked for more than one flag.

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<sup>86</sup> McCann Report ¶ 186, including n. 38.

<sup>87</sup> McCann Report n. 38.

**Figure 15: McCann Report Flagging Rates by Flag Type (Nonrecurrent), for the 669,828 Opioid Prescriptions Filled by Publix Pharmacies, 2006 to 2019**



96. Dr. McCann runs a second version of his red flag analysis, which he calls his “Recurrent” analysis. Basically, he starts from his initial analysis (i.e., his “Nonrecurrent” analysis), and simply flags “*all* subsequent prescriptions dispensed to the same patient and/or written by the same prescriber,” regardless of whether those subsequent prescriptions trigger a red flag independently.<sup>88</sup> Note also that the “recurrent” flag is marked on the initial “nonrecurrent” transaction in addition to all subsequent transaction, not only the subsequent transactions. Therefore, by this definition, his Recurrent analysis can only yield more red flags than his Nonrecurrent analysis. In fact, he flags 609,268 (91%) of the 669,828 opioid prescriptions filled by Publix for at least one red flag under this analysis. In addition, since it is a derivative analysis, all errors and flaws in the Nonrecurrent version of his analysis are necessarily passed through to the Recurrent version of his analysis. As such, my report focuses on the Nonrecurrent version of his analysis.<sup>89</sup>

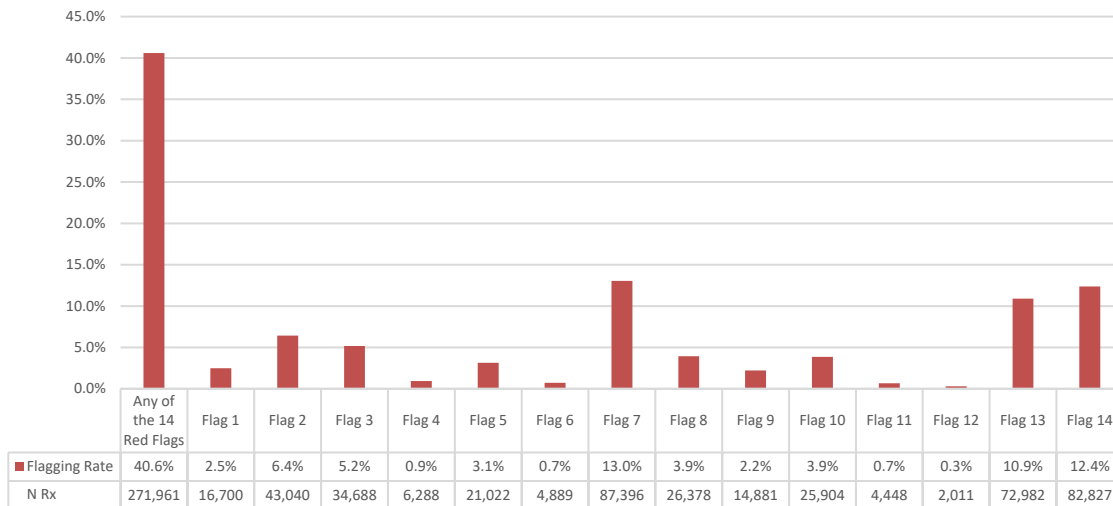
<sup>88</sup> McCann Report ¶ 188, emphasis added.

<sup>89</sup> Dr. McCann’s recurrent red flag algorithms include a calculation error in which he treats unrelated prescribers as a single prescriber by applying an identifier (“PRESC\_ID”), that, based on his other programs, he knows does not identify unique prescribers. Because recurrent red flags 2, 6, 8, 10, and 11 are related to prescribers, the result is overcounting Recurrent Flags. Furthermore, there are over 90,000 patient IDs with no nonrecurrent red flags but some recurrent red flags, and there are numerous instances where a prescriber and patient only appear in the data one time but have transactions with recurrent flags because recurrent flags are marked at the first instance of a nonrecurrent flag.

**B. Dr. McCann Admits in His Report That His Red Flag Analysis Is Subject to Overflagging for Certain Algorithms. His Adjustment Impacts Over 30,000 Prescriptions and Reduces his Red Flag Rate from 45.5% to 40.6%.**

97. Dr. McCann’s analysis contains examples of overflagging or false positives. One glaring indicator of such overflagging is Dr. McCann’s own “modified methodology,” which demonstrates that some of his algorithms are over-aggressive.<sup>90</sup> Flags 3, 4, 7, and 13 are based on combinations of prescriptions. Flags 3 and 4, for instance, are based on two opioid prescriptions being dispensed with overlapping days of supply. Dr. McCann’s original algorithms flag both prescriptions, even though at the time the first one was filled, assuming they were not filled at the same time, there was no way for the pharmacist to know about a future fill, and therefore no reason for a pharmacy to flag it—and, by Plaintiff’s expert’s logic, for the pharmacy to perform greater due diligence on it. His corrections to Flags 3, 4, 7, and 13 affect over 33,000 prescriptions and reduce his overall flagging rate by 10.9%, or 4.9 percentage points, from 45.5% to 40.6%. With these adjustments, nearly 60% of Publix opioid prescriptions do not receive a single flag. **Figure 16** shows the flagging rate for his modified nonrecurrent analysis, which, when compared to Figure 15, shows the impact of the adjustments.

**Figure 16: McCann Report Modified Flagging Rates by Flag Type (Nonrecurrent), for the 669,828 Opioid Prescriptions Filled by Publix Pharmacies, 2006 to 2019**



<sup>90</sup> McCann Report ¶ 191; McCann Report Table 84.

98. Counsel for Publix asked me to evaluate the impact on the Flag 7 algorithm if it considered days of supply and was not based solely on whether a benzodiazepine and an opioid prescription were dispensed within 30 days of each other. Flag 7 under Dr. McCann's algorithm flags flagged pairs even if the days of supply of the first prescription runs out well before the paired prescription is dispensed; in other words, if there is no overlap. In such instances, the patient would not have overlapping supplies of these medications, drawing into question why Dr. McCann (or any Plaintiff expert)<sup>91</sup> believes the pharmacist would have needed an alert regarding the prescription before dispensing it.<sup>92</sup> Dr. McCann had days of supply available to him and chose not to consider it. In fact, he relies on days of supply for Flag 13, indicating that he was aware of it and chose to ignore it for the Flag 7 algorithm. This additional correction would impact over 6,000 prescriptions and reduce his overall flagging rate by 0.9 percentage points, from 40.6% to 39.7%.

99. In addition, my review of prescriptions for Flag 9, which is intended to capture when "a patient was dispensed two short-acting (or immediate release) opioid drugs on the same day,"<sup>93</sup> reveals that Dr. McCann's calculations fail to account for instances where a single prescription is dispensed in multiple parts. Dr. McCann considers these as two separate prescriptions and flags both subsets of the same prescription, when neither should receive a flag. I find that the Publix Dispensing Data has over 1,500 prescription pairs with the same patient ID, doctor NPI, fill date, drug base, dosage strength, and quantity prescribed, where the number of dispensed units sum to the precise quantity prescribed. This results in 3,089 records flagged erroneously, as they fail to meet the criteria that Mr. Catizone specified for this flag, which is clearly meant to capture drug "cocktails."<sup>94</sup> I do not incorporate these adjustments in the analyses that follow, but instead calculate the impact of additional adjustments starting from the 40.6% flagging rate.

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<sup>91</sup> Other Plaintiff's experts assume all of Dr. McCann's red flags are correct indicators of improperly filled prescriptions. For instance, see, Catizone General Report p. 46 and n. 167; Lembke Report p. 213 at § C.6.p.xv.

<sup>92</sup> The Catizone General Report (pp. 32-34) cites to sources documenting that the *concurrent* use of opioids and benzodiazepines is the concern of this flag, including heightened risks when both prescriptions are filled the same day, indicating that supply day overlap appears to be relevant to Flag 7.

<sup>93</sup> McCann Report ¶ 186.

<sup>94</sup> Catizone General Report pp. 35-36.

**C. Dr. McCann’s Flag 14 Focuses on Customer Propensity to Pay in Cash, Yet It Fails to Consider Insurance Coverage in Cobb County. Flag 14 Is Strongly Positively Correlated with Uninsurance Rates.**

100. Dr. McCann’s Flag 14 is applied without considering whether the prescription recipient even has insurance as an alternative payment option. According to Dr. McCann’s analysis, 12.4% of the opioids dispensed by Cobb County Publix stores from 2006 to 2019 received Flag 14 (patient paid in cash). Flag 14 is the third-most prominent flag in his analysis, accounting for 82,827 flagged opioid prescriptions. Of those 82,827 prescriptions, 64,416 (or 78%) received *only* Flag 14. This means paying in cash is the only “offense” for those prescriptions. Importantly, the Flag 14 rate is strongly positively correlated with uninsurance rates, and Dr. McCann’s analysis does nothing to account for this factor.

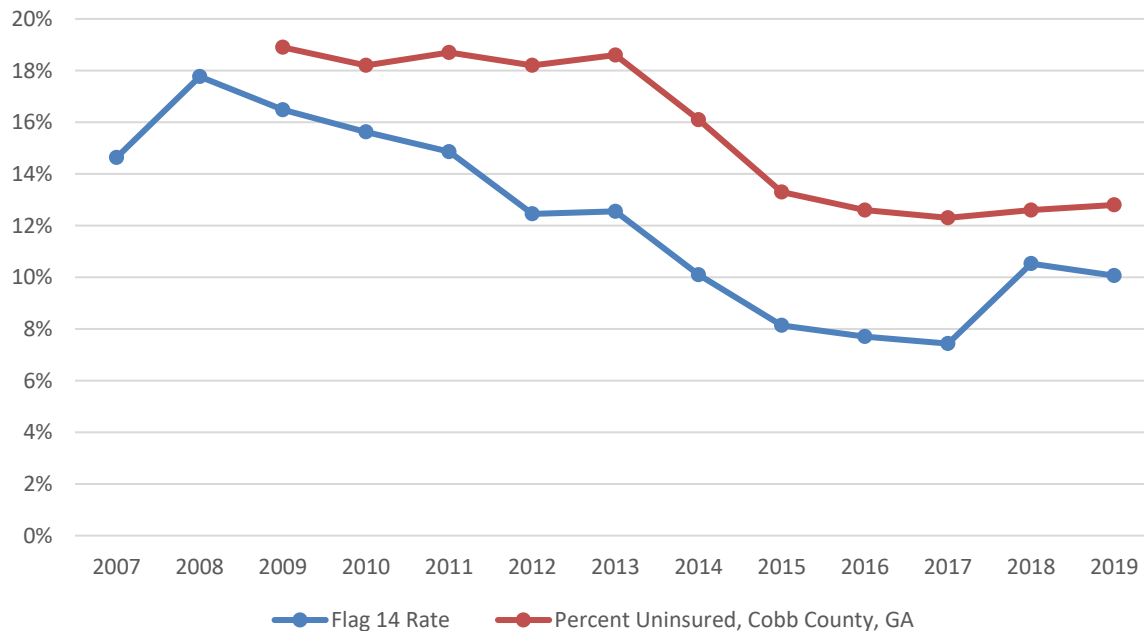
101. **Figure 17** shows Dr. McCann’s Flag 14 rate<sup>95</sup> and the uninsurance rate in Cobb County, Georgia,<sup>96</sup> by year. The uninsurance rate is always higher than the Flag 14 rate. In addition, the Flag 14 rate declines over time, in step with uninsurance rates, with a correlation coefficient of 0.88, indicating strong positive correlation. In contrast, Dr. McCann’s overall red flag rate remains relatively stable over time, between approximately 43% to 46%. Notably, the Affordable Care Act (“ACA”) was signed into law in 2010, allowing young adults to stay on their parents’ plan until age 26, and in 2014, the health insurance marketplaces opened, leading to broader ACA enrollment.<sup>97</sup>

<sup>95</sup> The flag rate is calculated as the number of opioid prescriptions receiving the respective Flag 14 divided by the total number of opioids filled in each year.

<sup>96</sup> U.S. Census Bureau. “Health Insurance Coverage Status by Sex by Age.” American Community Survey, ACS 1-Year Estimates Subject Tables, 2009 accessed via API; U.S. Census Bureau. “Selected Characteristics of the Uninsured in the United States.” American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2702, [2010 - 2014], [https://data.census.gov/table/ACSST1Y\[2010 - 2014\].S2702?q=insurance coverage&g=050XX00US13067](https://data.census.gov/table/ACSST1Y[2010 - 2014].S2702?q=insurance%20coverage&g=050XX00US13067); U.S. Census Bureau. “Selected Characteristics of Health Insurance Coverage in the United States.” American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2701, [2015 - 2019], [https://data.census.gov/table/ACSST1Y\[2015-2019\].S2701?q=insurance coverage&g=050XX00US13067](https://data.census.gov/table/ACSST1Y[2015-2019].S2701?q=insurance%20coverage&g=050XX00US13067).

<sup>97</sup> “Affordable Care Act (ACA).” *Healthcare.gov*. <https://www.healthcare.gov/glossary/affordable-care-act/>; “How to Get Insurance Through the ACA Health Insurance Marketplace.” *USA.gov*, <https://www.usa.gov/health-insurance-marketplace>.

**Figure 17: McCann Report Flag 14 (Patient Paid Out-of-Pocket) vs. Uninsurance Rate in Cobb County, 2007 to 2019**



102. The overall Flag 14 rate is 12.4% across all ages. However, for the under-45 group it is 20.1%, which is 2.5-times as high as that of the 45+ age group (8.0%). Indeed, the Flag 14 rate is highest among the under-45 age group, which is also the age group most likely to be uninsured.<sup>98</sup> In addition, half of the red flags assigned to prescriptions for patients under 45 years old are flagged due to the patient having paid out of pocket. Lack of insurance is a confounding factor for the relationship between opioid prescription risk and paying for an opioid prescription out-of-pocket, leading to a misidentification of potentially problematic prescriptions.

<sup>98</sup> In 2010, the uninsurance rate for 18 to 44-year-olds and 45+ year olds was 29.5% and 11.6%, respectively. Thus, 18 to 44-year-olds were over 2.5x more likely to be uninsured than 45+ year olds; In 2017, the uninsurance rate for 19 to 44-year-olds and 45+ year olds was 19.3% and 7.8%, respectively. Similarly, the 19 to 44-year-olds were nearly 2.5x more likely to be uninsured than 45+ year olds. See, U.S. Census Bureau. "Selected Characteristics of the Uninsured in the United States." American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2702, 2010, [https://data.census.gov/table/ACSST1Y2010.S2702?q=insurance coverage&g=050XX00US13067](https://data.census.gov/table/ACSST1Y2010.S2702?q=insurance%20coverage&g=050XX00US13067); U.S. Census Bureau. "Selected Characteristics of Health Insurance Coverage in the United States." American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2701, 2017, [https://data.census.gov/table/ACSST1Y2017.S2701?q=insurance coverage&g=050XX00US13067](https://data.census.gov/table/ACSST1Y2017.S2701?q=insurance%20coverage&g=050XX00US13067). The ACS changed the age band groupings, which is why the 2017 figures include 18-year-olds.

103. Removing prescriptions that were flagged *only* for Flag 14 (i.e., prescriptions that did not receive any of Dr. McCann's other 13 flags) reduces his overall flagging rate by up 9.9 percentage points, from 40.6% to 30.7%.

**D. Dr. McCann's Red Flags Are Heavily Concentrated in Prescriptions Filled by Patients Aged 45 and Over. The Flags Are Strongly Positively Correlated with Age and Disconnected from Opioid Substance Abuse Hospital Admissions and Opioid-Related Death Rates, Which Are Concentrated in a Younger Population.**

104. The flagging rate for several of Dr. McCann's red flag algorithms are strongly positively correlated with age, meaning as the age of the patient increases, the likelihood of a prescription receiving a flag also increases. This is true for his most prominent flags, which are Flag 7 (patient was dispensed an opioid and a benzodiazepine within 30 days of one another) and Flag 13 (a patient was dispensed more than 210 "days of supply" of all opioids combined in a 6-month period) as well as Flag 3 (patient was dispensed opioid prescriptions with overlapping days of supply that were written by two or more prescribers).<sup>99</sup> According to Dr. McCann's analysis, of the opioids dispensed by Cobb County Publix stores from 2006 to 2019, 13.0% received Flag 7, 10.9% received Flag 13 and 5.2% received Flag 3.

105. Other factors also exhibit a strong positive correlation with age, including benzodiazepine use and health issues like cancer, chronic pain, surgery, and other conditions with treatments that include the use of opioids to manage pain.<sup>100,101</sup> Age is a confounding factor for the relationship between opioid prescription risk and receiving opioids that trigger a red flag, leading to a misidentification of potentially problematic prescriptions.

106. **Figure 18** shows the Dr. McCann's red flag rate for each age group, with a red scale "heatmap" indicating higher rates with darker red. Each red flag rate is calculated as the number of opioid prescriptions receiving the respective flag divided by the total number of opioids filled for the age group. For instance, of all opioids filled by patients 55-64 years of age, 23.0% received Flag 13. Figure 18 also shows the overall flagging rate and the age correlation coefficient. The correlation coefficient of patient age is 0.91 for Flag 7, 0.79 for

<sup>99</sup> Flags 7, 13, and 3 have correlation coefficients with age of 0.91, 0.79, and 0.71, respectively.

<sup>100</sup> See n. 80.

<sup>101</sup> See n. 81.



Flag 13 and 0.71 for Flag 3, indicating strong positive correlation (as the age of the patient increases, the likelihood of a prescription receiving the flag also increases).

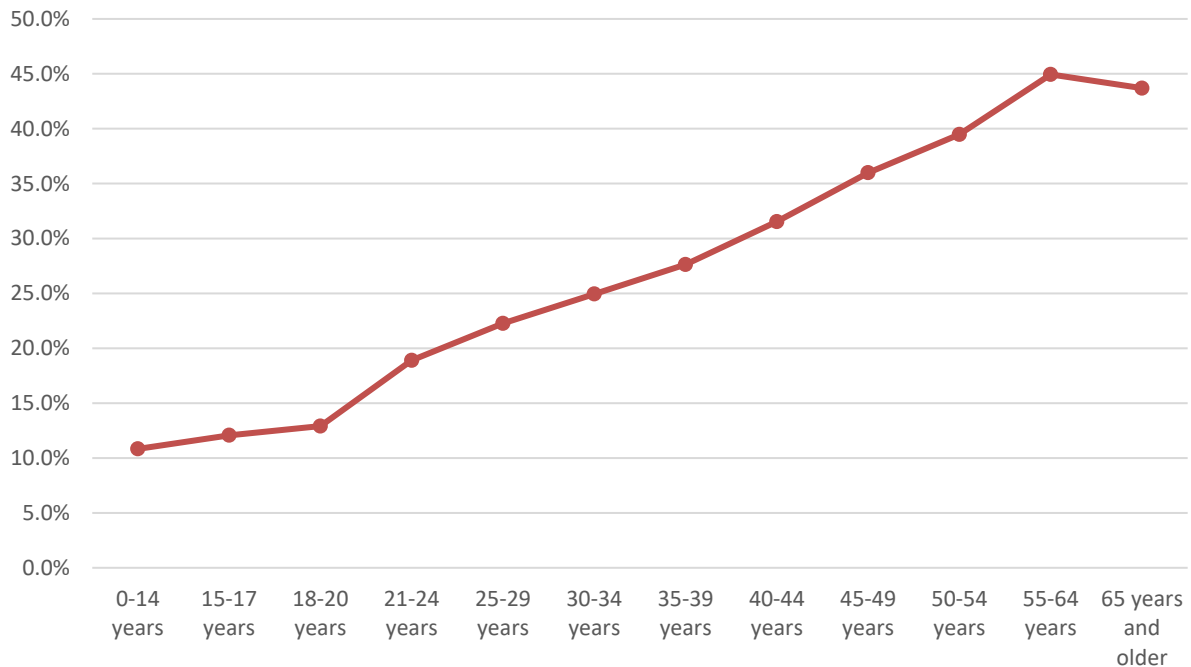
**Figure 18: McCann Report Red Flag Rates, by Age of Patient, 2006 to 2019**

Age Category	Flag Rate, Flag 1	Flag Rate, Flag 2	Flag Rate, Flag 3	Flag Rate, Flag 4	Flag Rate, Flag 5	Flag Rate, Flag 6	Flag Rate, Flag 7	Flag Rate, Flag 8	Flag Rate, Flag 9	Flag Rate, Flag 10	Flag Rate, Flag 11	Flag Rate, Flag 12	Flag Rate, Flag 13	Flag Rate, Flag 14
0-14 years	1.8%	6.5%	1.2%	0.3%	0.0%	0.0%	2.1%	1.2%	1.0%	0.1%	0.1%	0.1%	0.0%	8.3%
15-17 years	1.1%	5.0%	1.9%	0.2%	0.0%	0.0%	3.6%	2.1%	1.3%	0.0%	1.0%	0.0%	0.0%	9.2%
18-20 years	2.0%	4.5%	1.9%	0.3%	0.1%	0.0%	3.8%	1.6%	1.6%	0.1%	1.4%	0.0%	0.0%	11.2%
21-24 years	4.9%	8.1%	3.3%	0.6%	0.7%	0.2%	4.7%	1.5%	1.5%	0.3%	1.7%	0.0%	0.8%	25.3%
25-29 years	4.5%	8.7%	4.6%	1.4%	0.9%	0.3%	6.6%	2.0%	1.5%	1.1%	1.5%	0.1%	3.4%	27.8%
30-34 years	3.7%	7.4%	5.0%	1.6%	1.7%	0.3%	9.4%	2.4%	1.7%	1.9%	1.2%	0.1%	4.8%	23.3%
35-39 years	3.2%	7.0%	6.3%	1.6%	2.2%	0.5%	10.8%	3.2%	2.0%	2.4%	1.0%	0.2%	7.3%	19.8%
40-44 years	3.0%	7.0%	7.1%	1.6%	3.6%	1.0%	13.2%	4.2%	2.3%	2.9%	0.7%	0.3%	10.6%	16.2%
45-49 years	2.8%	7.4%	8.5%	1.7%	4.3%	0.8%	15.4%	4.2%	2.1%	4.4%	0.6%	0.4%	14.4%	14.4%
50-54 years	2.1%	6.3%	9.9%	1.9%	6.1%	1.2%	18.2%	5.0%	2.6%	5.2%	0.5%	0.4%	18.6%	11.6%
55-64 years	1.9%	6.4%	11.1%	1.9%	6.4%	1.2%	21.4%	5.2%	2.8%	6.1%	0.4%	0.4%	23.0%	7.7%
65 years and older	1.6%	4.8%	10.9%	1.3%	3.7%	0.5%	20.3%	4.0%	2.2%	4.3%	0.3%	0.3%	21.8%	3.9%
Overall Red Flag Rate	2.5%	6.4%	8.5%	1.5%	3.9%	0.7%	15.8%	3.9%	2.2%	3.9%	0.7%	0.3%	15.2%	12.4%
Age Correlation	(0.45)	(0.32)	0.71	0.25	0.40	0.25	0.91	0.62	0.15	0.44	(0.40)	0.57	0.79	(0.56)

107. Flag 14 (patient paid out of pocket) has the third-highest flagging rate and is more heavily concentrated in the under-45 age group, which, as discussed above, is the age group most likely to be uninsured. **Figure 19** shows the overall flagging rate by age group, excluding Flag 14. The trend line indicates that Dr. McCann's flagging rate is a strong proxy for patient age, driven in large part by Flags 7, 13, and 3.<sup>102</sup>

<sup>102</sup> Moreover, a simple regression analysis of Flagging Rate on Age indicates a strong linear relationship: The flagging rate starts at 12.12% at age 0 and increases by 0.39 percentage points for each additional year of age. The intercept of 12.12% means that, at a minimum, there is an 12.12% chance of a prescription receiving one of the 13 red flags, prior to considering age. If a 55-year-old fills a prescription, however, there is a 33.6% chance that prescription will receive one of the 13 red flags ( $=12.12\%+0.39\%\cdot 55$ ). The equation is:  $FlaggingRate(x) = \beta_0 + \beta_1 \cdot x + \epsilon$  where  $x$  represents the age,  $\beta_0$  is the intercept (12.12%), indicating the flagging rate at age 0,  $\beta_1$  is the slope (0.39%), representing the increase in flagging rate per year of age,  $\epsilon$  denotes the error term in the regression model. The  $R^2$  of the equation is 0.78. " $R^2$  is the ratio of the explained variation compared to the total variation; thus, it is interpreted as the fraction of the sample variation in  $y$  that is explained by  $x$ ." Wooldridge, Jeffrey M. *Introductory Economics* 5<sup>th</sup> ed. South-Western, 2013, p. 38.

**Figure 19: McCann Report Red Flag Rate (Excluding Flag 14) for Publix Stores in Cobb County, by Age of Patient, 2006 to 2019**



108. Not only are flagging *rates* higher for older patients but flagging *levels* (or counts) are also higher. Notably, Dr. McCann’s red flags are heavily concentrated in older patients – i.e., 75% of his red flagged prescriptions were for patients over 40 years old. Treatment Episode Dataset (TEDS) data show opioid-related hospital admissions in Cobb County predominately involve younger patients in their 20s and 30s<sup>103</sup> and opioid-related death rates in Georgia are more evenly distributed by age.<sup>104</sup>

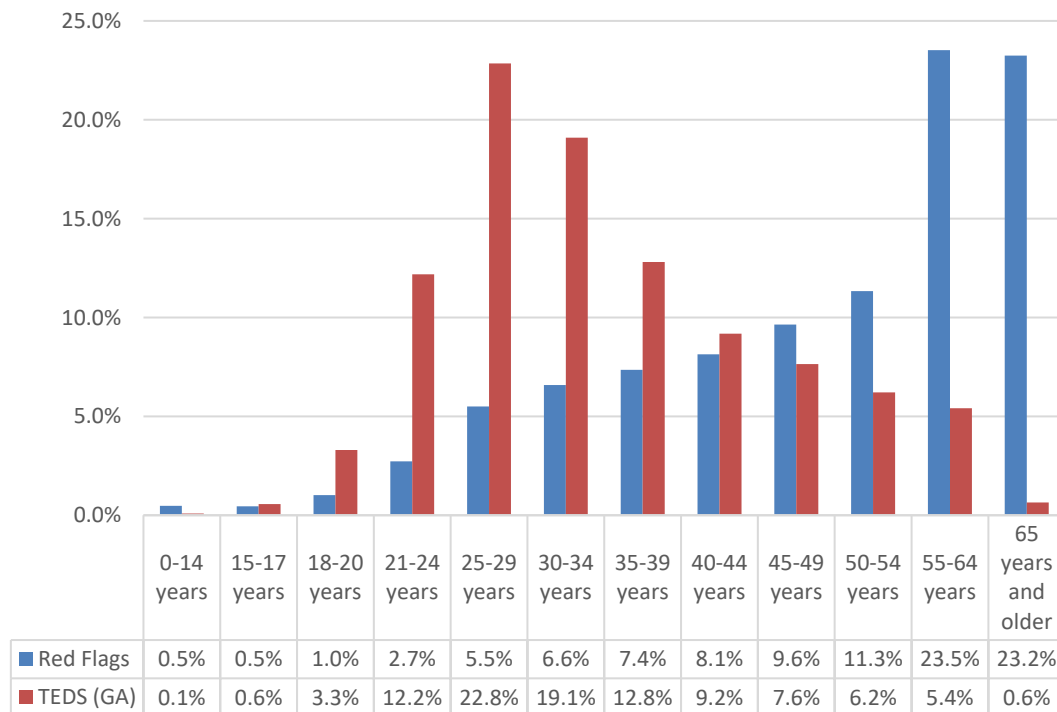
109. **Figure 20** shows two histograms segmented into distinct age groupings. The blue bars measure the percentage of Dr. McCann’s red flags by age groups. The red bars indicate the percentage of people admitted for opioids-related treatment according to the TEDS, a publicly available dataset from the Substance Abuse and Mental Health Services Administration. The red bars, Georgia admissions for opioid substance abuse, are highest

<sup>103</sup> Treatment Episode Dataset Admissions (TEDS-A), Substance Abuse and Mental Health Services Administration (SAMHSA), accessible at <https://www.samhsa.gov/data/data-we-collect/teds-treatment-episode-data-set>. Limited to records where heroin or other opiates or synthetics were identified as the primary substance use.

<sup>104</sup> Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 1999-2020 on CDC WONDER Online Database, released in 2021. [MCD-ICD-10 Codes: T40.2, T40.3. State: Georgia(13). UCD-Drug/Alcohol Induced Causes: X40-X44, X60-X64, X85, Y10-Y14. Year: 2006-2019. Group By: Single-Year Ages].

between ages 21 and 39, accounting for over two-thirds of all such admissions. By contrast, prescriptions flagged for that age group account for approximately 23% of Dr. McCann's flags. The opposite pattern emerges for opioid prescriptions for older patients: Approximately two-thirds of McCann's flags are found on prescriptions for patients 45 and older even though this age group only accounts for less than 20% of TEDS admissions in Georgia.<sup>105</sup>

**Figure 20: McCann Report Red Flag Distribution vs. TEDS Opioids-Related Admissions Distribution, by Age of Patient, 2006 to 2019**

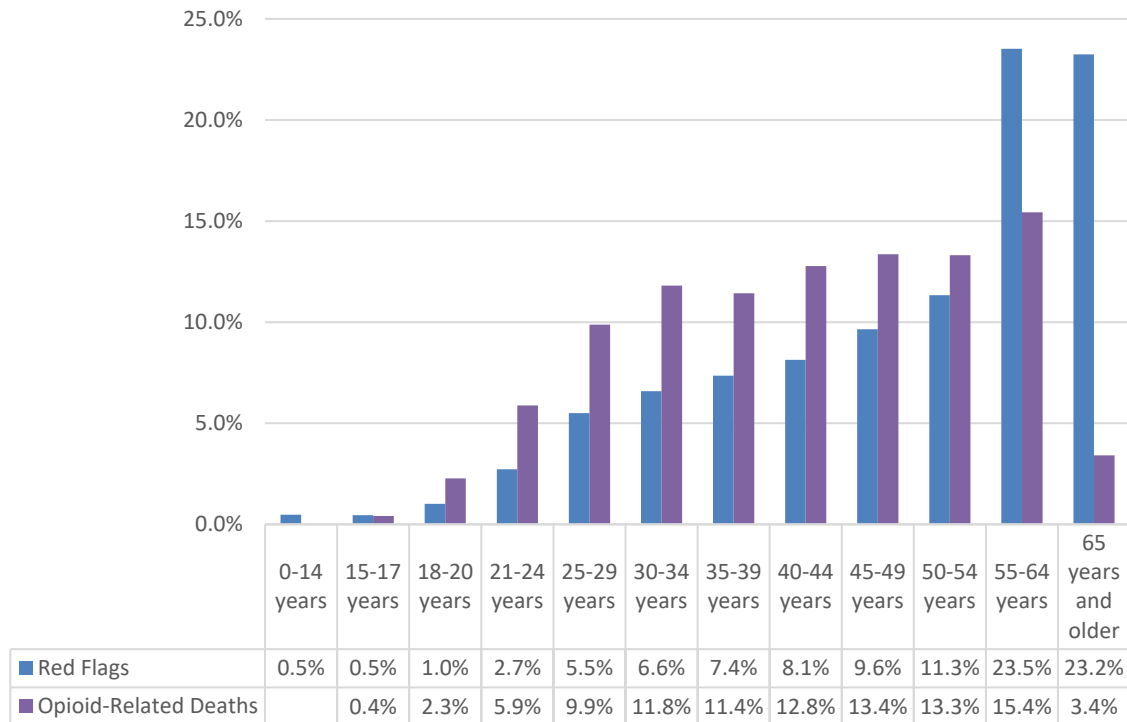


110. **Figure 21** shows a similar chart with the opioids-related death rates for the state of Georgia. Over 46% of Dr. McCann's red flagged prescriptions are for patients over 55 years old. The death rate for that age group, in contrast, is 18.8%.<sup>106</sup>

<sup>105</sup> The TEDS distribution and Dr. McCann's red flag distribution are statistically different from each other according to a chi-square test. Bock, David E. et al. *Stats: Modeling the World*. Pearson, 2019, 5th ed. pp. 669-682. The null hypothesis is that the distributions are the same, but the test statistic of 75177 and p-value of <0.0001 means that we reject the null.

<sup>106</sup> The opioids-related death rates distribution and Dr. McCann's red flag distribution are statistically different from each other according to a chi-square test. The null hypothesis is that the distributions are the same, but the test statistic of 1788.17 and p-value of <0.0001 means that we reject the null. Bock, David E. et al. *Stats: Modeling the World*. Pearson, 2019, 5th ed. pp. 669-682.

**Figure 21: McCann Report Red Flag Distribution vs. CDC Opioids-Related Deaths Distribution, by Age of Patient, 2006 to 2019**



111. The confluence of statistical evidence suggests Dr. McCann’s analysis overflags the prescriptions filled by older patients. If the point of Dr. McCann’s algorithm is to detect potentially problematic prescriptions, the flagging rates should not increase as a function of age – especially when, as I have shown, older patients are more likely to receive opioids for legitimate health reasons. Nor should the distribution of flagging levels (or counts) skew toward the older demographics when the distribution of adverse consequences associated with problematic prescriptions, using as a proxy opioid-related hospital admissions and death rates by age, is concentrated in a younger population.

112. Flags 7, 13, and 3 alone affect over 190,000 flagged prescriptions. Removing the flags with the highest correlation with age (Flags 7, 13, and 3), in addition to removing Flag 14, further reduces Dr. McCann’s overall flagging rate by up to 12.8 percentage points, from 30.7% to 17.9%. With these adjustments, as much as 82% of Publix opioid prescriptions would not receive a single flag.

**E. Dr. McCann's Flags 1 and 2 Are Based on a Distance Threshold of 25 Miles. The Algorithm is Sensitive to That Threshold and Fails to Consider Patients Who Live in Rural Areas and Are More Likely to Travel to Seek Care, Those Who Travel to See a Specialist, and Those Injured While Traveling.**

113. According to Dr. McCann's analysis, of the opioids dispensed by Cobb County Publix stores from 2006 to 2019, 2.5% received Flag 1 (patient traveled more than 25 miles to the pharmacy using zip code centers as start and end points, and not actual locations) and 6.4% received Flag 2 (patient traveled more than 25 miles to the provider using zip code centers as start and end points, and not actual locations).

114. Dr. McCann states that he ran his red flag analysis based on communication with Mr. Catizone.<sup>107</sup> Mr. Catizone states that he chose 25 miles as the trigger for Flags 1 and 2 based on state decisions regarding telepharmacy, pointing only to a 2003 North Dakota government ruling.<sup>108</sup> Further, several of his sources do not specify a particular distance but instead use generic terms, such as "unexplainable and/or unreasonably long distance,"<sup>109</sup> and "driving long distances to have their prescriptions filled."<sup>110</sup> In fact, one of the supporting sources for a Catizone Report sentence claiming that 25 miles is "an inordinate distance" sets the bar at hundreds of miles:

In *Pharmacy Doctors Enterprises, Inc., v. Drug Enf't Admin.*, 789 Fed. Appx. 724, 730 (11th Cir. 2019), customers traveling "hundreds of miles roundtrip" was again noted as a red flag.<sup>111</sup>

115. The two other legal decisions Mr. Catizone cites for support in that same footnote do not specify a distance at all, but instead use the term "long distance."<sup>112</sup> In fact, Mr. Catizone cites to Kroger's flagging criteria, which is greater than 100 miles.<sup>113</sup>

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<sup>107</sup> McCann Deposition at 10:11 – 12:6, 24:11-16.

<sup>108</sup> Catizone Report p. 28.

<sup>109</sup> Catizone Report p. 29 and n. 66.

<sup>110</sup> Catizone Report p. 28 at n. 51, citing Court case *East Main Street Pharmacy*.

<sup>111</sup> Catizone General Report p. 28.

<sup>112</sup> Catizone General Report n. 50. In addition, one of those sources mentions "traveling long distances from the location of their home and physician" but Mr. Catizone ignores distance from physician when assigning red flags even though he could have asked Dr. McCann to calculate the distance from physician to pharmacy. In addition, Mr. Catizone mentions that people might use a pharmacy near work (Catizone Report p. 27), but the red flag algorithms do not consider this, which is evidence that the algorithms over-flag.

<sup>113</sup> Catizone General Report p. 28.

116. Counsel for Publix asked me to recalculate Flags 1 and 2 (patient traveled more than 25 miles to the pharmacy or provider) under various mileage thresholds through 100 miles. **Figure 22** shows the impact of relaxing the mileage threshold to 30, 50 and 100 miles. Under a 100-mile threshold, for example: over 62% of prescriptions are no longer flagged for Flag 1 (=6,245/16,700-1), and over 75% are no longer flagged for Flag 2 (=10,402/43,040-1).

**Figure 22: Number of Prescriptions Receiving Flag at Various Mileage Thresholds**

	Flag 1	Flag 2
More than 25 Miles	16,700	43,040
More than 30 Miles	13,747	30,099
More than 50 Miles	7,950	14,108
More than 100 Miles	6,245	10,402

117. In addition, Dr. McCann does not consider that those prescriptions receiving Flag 1 and Flag 2 are, respectively, 273-times and 56-times more likely to be associated with a patient that lives in a rural area<sup>114</sup> and may need to travel to seek care.

118. These flags alone affect over 100,000 flagged prescriptions. Relaxing the mileage threshold for Flags 1 and 2 from 25 miles to 100 miles, in addition to the changes above, further reduces his overall flagging rate by up to 4.3 percentage points, from 17.9% to 13.6%. With these adjustments, 86.4% of Publix opioid prescriptions would not receive a single flag.

<sup>114</sup> RF\_1=1: 10.93 % of Rx (1825 of 16,700) from rural patient zip codes; RF\_1=0: 0.04% of Rx (288 of 653,128) from rural patient zip codes. RF\_2=1: 3.95 % of Rx (1699 of 43,040) from rural patient zip codes; RF\_2=0: 0.07% of Rx (414 of 626,788) from rural patient zip codes. U.S. Census Bureau. “A National 2010 Urban Area File Containing A List of All Urbanized Areas and Urban Clusters (including Puerto Rico and the Island Areas) Sorted by UACE Code” [https://www2.census.gov/geo/docs/maps-data/data/rel/ua\\_zcta\\_rel\\_10.txt](https://www2.census.gov/geo/docs/maps-data/data/rel/ua_zcta_rel_10.txt), available at <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html>; U.S. Census Bureau. “2010 Urban Area to Zip Code Tabulation Area (ZCTA) Relationship File” [https://www2.census.gov/geo/docs/reference/ua/ua\\_list\\_all.xls](https://www2.census.gov/geo/docs/reference/ua/ua_list_all.xls), available at <https://www.census.gov/geographies/reference-files/time-series/geo/relationship-files.2010.html#list-tab-1709067297>.

**F. Dr. McCann's Red Flag Analysis Does Not to Consider Data on Doctor Specialty Areas, Such as Doctors Specializing in Cancer Treatments, Which Prescribe Opioids to Treat Pain.**

119. Counsel for Publix also asked me to evaluate Dr. McCann's flagging rates by prescriber specialty area. My analysis shows that his algorithms flag certain categories of prescriptions at a higher rate than average, including prescriptions originating from medical specialties such as cancer treatment that rely on the use of opioids to treat pain.<sup>115,116</sup>

120. **Exhibit 7** shows the number and frequency of opioid prescriptions and red flags by doctor specialization and taxonomy. The greatest number of opioids were prescribed by Emergency Medicine providers, "207P00000X - Emergency Medicine" (60,992, or 9.1%). Of the 60,992, 41.2% received a red flag. The most prominent red flag for this taxonomy is Flag 14, which is attributed to 26.3% of all opioid prescriptions originating from this area of medicine. As I describe above, Flag 14 is statistically confounded by uninsurance rates.

121. Prescriptions written by Pain Medicine providers, "208VP0014X – Pain Medicine – Interventional Pain Medicine," received the greatest number of red flags (41,424) as well as the highest red flag rate (73.1%). Notably, the average age for recipients of prescriptions from Pain Medicine is 60 years old, which is considerably higher than that of Emergency Medicine patients at 42 years old. The most prominent red flags for this taxonomy are Flag 13 (53.9%), Flag 7 (27.9%) and Flag 3 (25.1%). As I describe above, Flags 13, 7 and 3 are statistically confounded by patient age.

122. The exhibit also allows one to understand the relative red flag rate within specialty areas. For example, the red flag rate for the cancer-related specialization of "207RH0003X - Internal Medicine - Hematology & Oncology" is 63.5%, which is 1.39-times the general rate (45.5%). To put this another way, if a patient receives an opioid prescription from a Hematology & Oncology provider, there is a 63.5% chance it will receive a flag under Dr. McCann's analysis.

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<sup>115</sup> See n. 80.

<sup>116</sup> See n. 81.



**G. Unique Prescriber and Patient Counts Receiving a Red Flag**

123. Counsel for Publix asked me to identify the number of unique patients in the red flagged population, the number of unique providers, and the number of red flags receiving at least one red flag and at least two red flags. **Figure 23** shows there are 15,483 unique doctors, 89,315 unique patients, and 305,069 unique prescriptions, related to a prescription that received one or more red flag, and 7,870 unique doctors, 27,909 unique patients, and 131,055 unique prescriptions related to a prescription that received 2 or more red flags.

**Figure 23: McCann Report Red Flags, by Distinct Prescriber, Patient and Prescription Counts, 2006 to 2019**

	Receiving/ Writing 1+ Opioid Rx	Receiving/ Writing Rx with 1+ Red Flag	Receiving/ Writing Rx with 2+ Red Flag
Distinct Doctors	15,483	12,755 82.4%	7,870 50.8%
Distinct Patients	204,075	89,315 43.8%	27,909 13.7%
Prescriptions	669,848	305,069 45.5%	131,055 19.6%

**IX. The Doctors Ms. Keller Identified and Highlighted in Her Report are Minor Prescribers at Publix Stores According to Publix Dispensing Data**

124. Ms. Keller describes her assignment as using IQVIA Xponent data to tabulate certain pharmaceutical opioids prescribed in Cobb County and the state of Georgia, and then to show examples of prescribers using both IQVIA and Defendant Dispensing Data.<sup>117</sup> Ms. Keller stated that she was not asked to look at the ARCOS data, perform any distributor analysis, calculate market share, or review any prescribers besides the ones specifically mentioned in her report.<sup>118</sup> Ms. Keller states that the only Defendant Dispensing Data she received was processed by SLCG and limited to the specific prescribers found in her report.<sup>119</sup> In Appendices C and D, the Keller Report documents the prescribing behavior of 16 doctors,<sup>120</sup>

<sup>117</sup> Keller Report ¶ 1.

<sup>118</sup> Keller Deposition at 15:1-13, 19:15 – 20:14, 74:2-8.

<sup>119</sup> Keller Report at ¶¶ 27, 41; Keller Deposition at 19:20 – 20:14.

<sup>120</sup> The Keller Report does not provide the selection criteria for the individual prescribers, stating that the examples are only illustrative (Keller Report ¶ 5). Ms. Keller does “provide narratives for four

using Publix dispensing data to show how many of those doctors' prescriptions were filled at Publix Pharmacies. Ms. Keller performed a similar analysis for Kroger using Kroger's dispensing data in Appendices E and F.

125. Nowhere in the 132 pages dedicated to prescription behavior examples (Appendices C and D) does the Keller Report contextualize the relative magnitude of each prescriber's filled prescriptions at Publix (i.e., the percentage of the doctor's prescriptions filled by Publix, and, within Publix pharmacies, the percentage of total fills these doctors comprise), leaving the reader with little context for interpreting what appear to be large numbers out of context.

126. Counsel for Publix asked me to respond to Ms. Keller's analyses related to Cobb County. For the 13 doctors with both IQVIA and Publix dispensing data, my analysis shows that Publix filled less than 1.3% of their prescriptions at its Cobb County pharmacies collectively. This means that 98.7% of their prescriptions were filled by other dispensers in Cobb County, or were filled outside the county.<sup>121</sup> Given Publix's market share of 10.0% (in terms of dosage units) in Cobb County, Publix filled the prescriptions for these doctors at a lower rate than expected,<sup>122</sup> bringing into question why those doctors were highlighted by Ms. Keller in the first place. Furthermore, my analysis shows that *within* Publix Cobb County stores, fills related to those doctors represent 0.77% of the total opioids filled, combined. For Dr. Askari (one of the prescribers highlighted in the Keller Report), this figure is 0.013%, indicating that Publix pharmacies in Cobb County encountered one prescription written by Dr. Askari for every 770 opioid prescriptions they filled.

127. The Keller Report states Defendants could have used both IQVIA and Publix Dispensing Data to understand doctor prescribing behavior.<sup>123</sup> However, Ms. Keller does not describe any guidelines or regulatory thresholds that a dispenser could use to interpret the data,

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prescribers in Georgia" in her report (Keller Report § IV.F), all of whom had legal troubles as a result of their opioid prescription histories and were selected by Plaintiff's counsel. (Keller Deposition at 67:24 – 68:5; 111:9 – 14).

<sup>121</sup> Publix filled 4.8% of these doctors' prescriptions in Georgia. Thus, 95.2% of the doctors' prescriptions were filled by other dispensers in Georgia (assuming the doctors' prescriptions were filled in Georgia and not in other states).

<sup>122</sup> Assuming equal distribution of prescription fills across the county, the expectation is that Publix would have filled the doctors' prescriptions at a rate that is equal to its market share in the county.

<sup>123</sup> Keller Report ¶ 87.

understand it, and potentially change behavior based on it.<sup>124</sup> Nor does she provide rigorous statistical analysis of doctor prescribing behavior and how Publix could have used the data to understand any deviations from statistical expectations at the prescriber level. She merely summarizes data.

**A. Publix Filled No More than 1.3% of The Select Doctor's Prescriptions in Cobb County**

128. Ms. Keller states that Publix could have used IQVIA data and / or its own dispensing data during the Analysis window to “understand the prescribing history of prescribers in Cobb County.”<sup>125</sup> However, the doctors that Ms. Keller singled out in Keller Report V.F. and Appendices C and D, while appearing to be prolific opioids prescribers according to IQVIA Data, had relatively small amounts of prescribed opioids filled at Publix according to Publix Dispensing Data.<sup>126</sup>

129. Take Dr. Nevorn Askari, for example, whose opioid prescribing behavior is showcased in the main body of the Keller Report as well as Appendices C and D. The Keller Report states:

Between the years of 2006 and 2019, Askari prescribed more than 1.7 million MME filled at Publix pharmacies in the state of Georgia. Of the approximately 1.7 million MME prescribed in the state, more than 350,000 MME were prescribed in Cobb County.<sup>127</sup>

130. In this description, Ms. Keller highlights the total number of Dr. Askari's prescribed MME filled at Publix rather than presenting the proportion of those MME filled at Publix relative to all of Dr. Askari's prescribed and filled MME. This does not offer the reader a basis for understanding the relative magnitude of Publix's dispensing activity for Dr.

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<sup>124</sup> Keller Deposition at 56:10-16 (“Q: Are you inferring or implying in your conclusions that Publix had the ability or duty to stop other pharmacies from filling opioid prescriptions? A: I don’t offer an opinion on what Publix should be doing or – yeah, I’ll just leave it at that.”).

<sup>125</sup> Keller Report ¶ 87.

<sup>126</sup> The Keller Report at § V.E. describes the prescribing behavior of a number of Georgia doctors: Mark Ellis, Kamal Kabakibou, Susan Harding, Yong Lee, Terrance Hughes, and Robert Windsor. Though Keller included narrative descriptions of these doctors' prescribing behavior in her report, she does not analyze Publix data for these doctors. Furthermore, according to Publix Dispensing Data, Dr. Susan Harding did not even have a single opioid prescription filled in any Cobb County Publix pharmacy.

<sup>127</sup> Keller Report ¶ V.F.ii.10.

Askari's prescriptions. I show that Publix was indeed a small dispenser of Dr. Askari's prescriptions, filling less than 0.4% of her prescriptions in Cobb County by various measures (total prescriptions, dosage units, and MME).<sup>128</sup>

131. From May 2007 to December 2017 (the period where both IQVIA and Publix Dispensing Data is available).<sup>129</sup> Dr. Askari wrote approximately 30 thousand opioid prescriptions according to IQVIA. However, only 78 (or 0.3%) were filled by Publix pharmacies in Cobb County according to Publix Dispensing Data. Because MME is by definition a small unit of measure, a milligram, the aggregate MME are large numbers, which, without any baseline or comparison, may be incorrectly interpreted as meaningful.

132. The Keller Report Appendix C and D singles out additional doctors in a similar fashion using Publix Dispensing data, some of whom she states were prolific prescribers in Georgia and / or Cobb County.<sup>130</sup> However, Publix was a relatively small dispenser of the prescriptions written by these doctors, filling less than 1.4% of their prescriptions in Cobb County, overall, by various measures (total prescriptions, dosage units, and MME). This means

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<sup>128</sup> At deposition, Ms. Keller incorrectly characterizes comparisons of a prescriber's prescriptions filled at Publix as a percentage of all of their prescriptions written as "apples to oranges" (Keller Deposition at 63:1 – 64:21, 65:6 – 66:20, 138:19 – 139:2). Ms. Keller indicates that one would need data for all prescriptions filled in Cobb County to perform this calculation properly, but this is simply not true. This is simple math. Ms. Keller acknowledges that the IQVIA data provides the population of prescriptions written by Dr. Askari. This is the denominator. In fact, Ms. Keller recognizes that IQVIA calculates this denominator in part by the data received from Publix regarding prescriptions filled at Publix (Keller Report ¶ 23). Therefore, prescriptions written by Dr. Askari and filled at Publix (the numerator) accounts for some portion of all prescriptions written by Dr. Askari (the denominator).

<sup>129</sup> The Publix Dispensing data spans May 2007 to May 2019. The IQVIA data spans January 2007 to December 2017. This analysis evaluates the intersection of those two datasets, May 2007 to December 2017.

<sup>130</sup> Keller Report V.E, V.F, and Appendices A-F. "In 2011 and 2012, Richardson was among the 13 highest prescribers in the county, 125 highest prescribers in the state for opioid dosage units" (Keller Report V.F.i.2); "For two year, 2008 and 2012, Mabine prescribed more than 10 times the national average opioid dosage units compared to his peers within the same specialty." (Keller Report V.F.iv.20). However, according to my analysis, Publix filled a very small proportion of Mabine's prescriptions. Publix filled 1.4% of Richardson's prescriptions from May 2007 to December 2017 at its Georgia pharmacies and 0.5% at its Cobb County pharmacies. In 2011 and 2012, those figures are 1.6% for Georgia and 0.6% for Cobb County in 2011 and 2012, respectively. Publix filled 5% of Mabine's prescriptions from May 2007 to December 2017 at its Georgia pharmacies and 2.9% at its Cobb County pharmacies. In 2008 and 2012, those figures are 4.7% for Georgia and 3.6% for Cobb County in 2011 and 2012, respectively. Over the May 2007 to December 2017 window, Richardson's opioid prescriptions accounted for 0.005% and 0.012% of Publix's total opioid fills at its Georgia and Cobb County pharmacies, respectively; Mabine's opioid prescriptions accounted for 0.072% and 0.264% of Publix's total opioid fills at its Georgia and Cobb County pharmacies, respectively.

that 95% of these doctors' prescriptions were filled by dispensers other than Publix Georgia pharmacies; and over 98% of the doctors' prescriptions were filled by dispensers other than Publix Cobb County pharmacies.

133. **Figure 24** provides the portion of written prescriptions filled by Publix in Cobb County for the 13 doctors highlighted in the Keller Report that appear in both IQVIA and Publix Dispensing Data. **Exhibit 8** provides the full underlying data to Figure 24, including total prescription activity for each doctor.

**Figure 24: Portion of Prescriptions Filled by Publix Pharmacies in Cobb County, for 13 of the 16 Doctors Highlighted in the Keller Report, May 2007 to December 2017**

Last Name	First Name	Doctor County	Rx	Doses	MME
ASKARI	NEVORN	DEKALB	0.3%	0.3%	0.4%
BENDER	JAY	FULTON	2.6%	2.7%	2.4%
BURTON	JOSEPH	DEKALB	1.1%	1.3%	2.0%
GOLIGHTLY	DANIEL	COBB	1.3%	1.0%	0.9%
LESLIE	HARVEY	DEKALB	0.5%	0.5%	0.4%
MABINE	LARRY	CHEROKEE	3.0%	2.6%	2.6%
MILLS	ANTHONY	FULTON	1.2%	1.3%	1.2%
MOSS	JOHN	FULTON	1.0%	0.9%	0.9%
NAGAREDDY	NARENDRA	CLAYTON	0.2%	0.1%	0.1%
RICHARDSON	WILLIAM	COBB	0.5%	0.6%	0.6%
ROLAND	ROMIE	FULTON	1.3%	1.1%	1.2%
SHAH	CHANDRESH	COBB	6.4%	5.4%	4.7%
SVED	ISAAC	GWINNETT	0.2%	0.1%	0.1%
<b>Total</b>			<b>1.3%</b>	<b>1.2%</b>	<b>1.2%</b>

**B. The Combined Volume of The Doctors' Prescriptions Make Up No More than 0.77% of All Opioid Prescriptions Filled by Publix in Cobb County**

134. These select doctors are also small prescribers *within* Publix pharmacies. **Figure 25** shows the doctors' prescriptions represent 0.77% of total prescriptions, 1.38% of total doses, and 2.44% of total MME dispensed by Publix in Cobb County. **Exhibit 9** provides the full underlying data to Figure 25, including the portion of total opioid fills that each doctor's prescriptions account for.

**Figure 25: Prescriptions Written by 13 Doctors Highlighted in the Keller Report Compared to the Total Opioids Dispensed by Publix Pharmacies in Cobb County, May 2007 to December 2017**

Last Name	First Name	Doctor County	Rx	Doses	MME
ASKARI	NEVORN	DEKALB	78	8,730	352,560
BENDER	JAY	FULTON	1,557	106,713	2,749,737
BURTON	JOSEPH	DEKALB	19	2,010	79,875
GOLIGHTLY	DANIEL	COBB	120	10,183	399,783
LESLIE	HARVEY	DEKALB	333	33,158	476,480
MABINE	LARRY	CHEROKEE	1,602	122,110	3,626,750
MILLS	ANTHONY	FULTON	36	2,110	38,588
MOSS	JOHN	FULTON	343	21,849	603,775
NAGAREDDY	NARENDRA	CLAYTON	28	1,740	15,000
RICHARDSON	WILLIAM	COBB	74	7,595	223,373
ROLAND	ROMIE	FULTON	251	20,808	515,646
SHAH	CHANDRESH	COBB	199	11,523	155,300
SVED	ISAAC	GWINNETT	50	3,783	111,503
<b>Opioid Prescriptions Written by Select Doctors and Filled by Publix Pharmacies in Cobb County</b>			<b>4,690</b>	<b>352,312</b>	<b>9,348,368</b>
<b>All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County</b>			<b>605,816</b>	<b>25,588,442</b>	<b>382,497,276</b>
<b>Percentage</b>			<b>0.77%</b>	<b>1.38%</b>	<b>2.44%</b>

135. My analysis shows that *within* Publix Cobb County stores, fills related to those doctors represent 0.77% of the total opioid prescriptions filled, combined. For Dr. Askari alone, this figure is 0.013%, indicating that Publix in Cobb County encountered one prescription written by Dr. Askari for every 770 opioid prescriptions it filled.

136. The Keller Report Appendices C and D also includes three doctors that are not found in IQVIA data, and therefore their prescriptions filled at Publix cannot be put in the broader context of their total prescribing activity. These doctors are Gregory Zakers, Oscar Stokes, and Yong Liu. **Exhibit 9B** is a supplemental extension of Exhibit 9 and provides the data for those three doctors.<sup>131</sup> It shows the 16 doctors' prescriptions represent 0.89% of total

<sup>131</sup> As explained above, Exhibit 9 includes only the 13 doctors in the Keller Report Appendix C and D that are in both Publix Dispensing Data and the IQVIA data that Ms. Keller produced with the Keller Report. The other three doctors are in Publix Dispensing Data but not IQVIA. I provide the supplemental table for completeness.

prescriptions, 1.61% of total doses, and 2.86% of total MME dispensed by Publix in Cobb County.

**C. The Keller Report Lacks a Statistical Basis for How Publix Could Have Used IQVIA and/or Its Dispensing Data to Identify Certain Prescribers Within Its Pharmacy**

137. Ms. Keller does not provide a statistical benchmark for identification of prescribers. IQVIA, for example, only provides doctor prescribing behavior in general – not as it relates to Publix in Cobb County. The Keller Report does not provide context to understand that prescribing level in a relative manner. Furthermore, the Keller Report does not provide statistical analysis to show what the numbers mean or how they could be interpreted by Publix: Are the doctor’s prescribing patterns higher or lower than expected? What threshold should be used to identify a “high prescribing” doctor? How should Publix, by way of statistical analysis, control for prescriber specialties that are known to prescribe opioids at a higher rate than average? Similarly, how should Publix control for patient information, such as age or illness, which could indicate higher expected opioid use than average?

138. Like the red flag analysis of Dr. McCann and Mr. Catizone, the Keller Report analyses of IQVIA data and Defendant Dispensing Data lack statistical basis for interpretation.<sup>132</sup> Ms. Keller’s review of select doctors and recitation of prescription counts are misleading without essential context and deeper statistical analysis.

**X. Plaintiff’s Experts Provide No Statistical or Academic Support for Conclusions Regarding the Impact of the Publix Bonus Structure or Pharmaceutical Promotions on Pharmacists’ Opioid Prescription Related Behavior**

139. Counsel for Publix asked me to evaluate certain statements in Plaintiff’s expert reports which associate Publix pharmacist bonuses with filling red flag prescriptions and associate pharmaceutical company promotions with increased opioid sales. I find that in both instances, Plaintiff’s experts do not rely on any data or academic research to support such claims. Plaintiff’s experts do not point to any research regarding effective compensation programs, nor do they quantify how opioid prescriptions contributed to a pharmacist’s

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<sup>132</sup> See n. 72.



compensation. Regarding pharmaceutical company promotions, Dr. Lembke does not analyze the data available in this matter when it is available to her, and in some instances, does not have data at all.

**A. Plaintiff's Experts Fail to Show the Extent to Which Opioid Prescriptions Contributed to Pharmacists' Compensation**

140. Plaintiff's experts make a number of statements that attempt to associate Publix's bonus structure as motivating Publix pharmacists to ignore red flags when filling prescriptions, yet none of Plaintiff's experts presents quantitative or economic analysis to justify such presumptions. Simple calculations shed doubt on such speculation.

141. Mr. Catizone describes the bonus structure this way:

Publix uses a strategic dashboard to measure performance objectives. Each objective is measured by using a Green, Yellow, and Red rating during the annual retail bonus plan review. Since at least 2011, Publix's quarterly retail bonus plan is based on 15% of the store's total performance, approximately 40% of the store's script count, and about 45% on department profitability.

Other performance evaluation factors include the 10-foot, 10-second rule, minimal customer wait times, and increased vaccinations. These performance goals leave pharmacists overworked. It was previously noted that "many feel as though they are completely unattainable or out of their control." The metrics that are evaluated at Publix are based on profitability with key performance indicators that are focused on net profits and sales goals. Metrics such as "shrink" that measures "idle" inventory includes opioids.<sup>133</sup>

142. Plaintiff's experts note that part of a Publix pharmacy manager's bonus is related to a prescription count, and because opioids are counted in the total number of prescriptions, they assume that the potential financial benefit of filling prescriptions was enough motivation for pharmacists to fill red flag prescriptions.<sup>134</sup> Plaintiff's experts neglect to point out that opioid prescriptions are a small percentage of total prescriptions, and red flagged prescriptions an even smaller percentage. They further neglect to place a precise monetary value on how much an additional prescription contributed to a pharmacist's compensation,

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<sup>133</sup> Catizone General Report p. 71.

<sup>134</sup> Lembke Report p. 211 at § C.6.p.x.; Rannazzisi Report p. 59; Catizone General Report, p. 72.

simply insinuating that it must have been impactful. I find that even at the highest compensation per prescription,<sup>135</sup> opioids are a small part of pharmacist compensation.

143. None of Plaintiff's experts provides any indication of how much opioid prescriptions could add to a pharmacist's compensation. **Figure 26** shows the prescription activity for Publix Pharmacy Store #0496 for the second quarter of 2012, as an example.<sup>136</sup> The pharmacy filled over 12 thousand prescriptions. Of these, 583, or 4.6%, were opioid prescriptions. The 583 opioid prescriptions include 233 red flag prescriptions, or 1.9% of all prescriptions filled that quarter (prior to adjusting Dr. McCann's analyses for the issues outlined above).

**Figure 26: Store 496 Actual Prescription Activity in Q2 2012**

Total Prescriptions Filled	12,583
Opioid Prescriptions Filled	583
<b>Opioid Share</b>	<b>4.6%</b>
Flagged Opioids	233
<b>Flagged Opioid Share</b>	<b>1.9%</b>

144. The bonus documents indicate that at a maximum, pharmacy managers receive \$0.15 per generic prescription and \$0.10 per name brand prescription. For assistant managers, those figures are \$0.10 and \$0.07, respectively. To be conservative, I assume that all prescriptions are generic. In that case, the opioid prescription contribution to the maximum bonus is \$87 per quarter ( $=583 \times \$0.15$ ) for a manager and only \$58.30 for an assistant manager. Using only the opioid receiving a red flag under Dr. McCann's original analysis, the maximum bonus is \$34.95 per quarter ( $=233 \times \$0.15$ ) for a manager and only \$23.30 for an assistant manager.

**B. Dr. Lembke Does Not Use Data Analysis or Statistics to Support Associations of Pharmaceutical Promotions with Publix Dispensing**

145. Dr. Lembke labels Publix as an "active collaborator" with pharmaceutical companies in promoting opioids because it accepted coupons and savings cards regarding

<sup>135</sup> PUBLIX-MDLT8-0006070787; PUBLIX-MDLT8-00060490; PUBLIX-MDLT8-00059249.

<sup>136</sup> I select the actual figures for Store 496 as an illustrative example.

opioid products.<sup>137</sup> However, Dr. Lembke never investigates how many of these coupons and savings cards were actually redeemed in Cobb County Publix pharmacies, relying instead on an assumption that Cobb County Publix pharmacies were involved because these were “national campaigns.”<sup>138</sup> Various data sources available to Dr. Lembke, including documents Dr. Lembke references, fail to show any statistically meaningful impact of these campaigns on opioids dispensed in Cobb County Publix pharmacies.

146. For example, Dr. Lembke states that in 2011, Publix “received payments for participation in Purdue’s Butrans ‘Stock and Save Program,’”<sup>139</sup> but then fails to realize that the document upon which she is basing her statement shows that no Publix store in Cobb County received any payments from this program in 2011.<sup>140</sup> Therefore, Dr. Lembke has no data with which to justify associating this program with opioid sales at Cobb County Publix stores. In fact, the document upon which she relies shows that there were only four rebates across *all* Georgia Publix stores, accounting for a total of only \$48.<sup>141</sup>

147. Dr. Lembke discusses Butrans again when she characterizes opioid adherence programs as being of questionable or negative value to patients.<sup>142</sup> The only adherence program she references specifically with respect to Publix is one Purdue launched in January 2014 for Butrans,<sup>143</sup> but Dr. Lembke cites to no evidence that Publix participated in the

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<sup>137</sup> Lembke Report pp. 101-104 at § C.6.c.v.-vi.

<sup>138</sup> Lembke Deposition at 48:13-18.

<sup>139</sup> Lembke Report p. 103 at § C.6.c.vi.

<sup>140</sup> Butrans was not available until 2011 (“Butrans Transdermal System Available Soon for Chronic Pain.” *MPR Medical Professionals Reference*. <https://www.empr.com/home/news/butrans-transdermal-system-available-soon-for-chronic-pain/>).

<sup>141</sup> Lembke Deposition Exhibit 10A (Lembke Report n. 505, PPLPC004000282746) shows that only four rebates for a total of \$48 were redeemed at Publix stores in Georgia, and none of these are located in Cobb County. According to PUBLIX\_MDLT8\_00000002, Store number 92/DEA number BP805050875 is located in Henry County, Store number 534/DEA number BP4566886 is located in Columbia County, Store number 612/DEA number BP5602304 is located in Gwinnett County, and Store number 773/DEA number BP7295810 is located in Dekalb County; Lembke Deposition 48:19 – 50:16.

<sup>142</sup> Lembke Report pp. 103-104 at § C.6.c.vi.

<sup>143</sup> Dr. Lembke agreed that she had no evidence that Publix participated in an adherence or marketing program with respect to Kadian (Lembke Deposition at 57:16-20).

program.<sup>144</sup> Importantly, there are no red flags associated with Butrans,<sup>145</sup> a name-brand for buprenorphine, an opioid treatment-related drug that Dr. McCann removed from the Publix Dispensing Data.<sup>146</sup> It is unclear why Dr. Lembke finds that a program aimed at assisting patients adhere to a regimen that aims to help reduce opioid addiction is a negative association for Publix.

148. Regardless, the Lembke Report provides no statistical evidence that the 2014 Butrans program led to any change in Cobb County Publix dispensing behavior, let alone any improper actions. As shown in **Figure 27** and based on ARCOS data, comparing the percentage of the Butrans brand fills out of all buprenorphine fills in Cobb County Publix in 2014 with the same percentage in 2013 shows a decrease, from 19.6% to 17.5%, and then even though it rises to 18.9% in 2015, Butrans still accounts for a smaller percentage of buprenorphine than it did in 2013. Thus, the 2014 campaign does not appear to have had a discernable impact. In addition, Butrans at Publix always comprised less than 1.5% of all buprenorphine distributed according to the ARCOS data set for Cobb County Publix between 2006 and 2019.<sup>147</sup>

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<sup>144</sup> Lembke Deposition at 56:7 – 58:9; Lembke Deposition Exhibit 13 (PPLP003345164), which does not list Publix as a participant.

<sup>145</sup> Butrans is a transdermal patch (“Butrans Patch, Transdermal Weekly – Uses, Side Effects, and More.” *WebMD*. <https://www.webmd.com/drugs/2/drug-155153/butrans-transdermal/details>), though buprenorphine medications are available in different delivery systems, including pills and injections (“Buprenorphine.” *Drugs.com*. <https://www.drugs.com/buprenorphine.html>).

<sup>146</sup> McCann Report ¶ 80. McCann Report Appendix 3 n. 3 states: “Buprenorphine formulations with a[n] FDA approved indication for Medication Assisted Treatment (MAT) are excluded from Medicare’s Overutilization Monitoring System’s opioid overutilization reporting.”

<sup>147</sup> The average number of doses per prescription of buprenorphine is 34.4, according to the Enterprise data. ARCOS does not provide prescription count. The table estimates prescription count as dosage units divided by 34.4.

**Figure 27: Butrans and Buprenorphine Filled by Publix in Cobb County, Number of Prescriptions, 2006 to 2019**

Year	Buprenorphine (Enterprise)	Butrans Brand (Enterprise)	Publix Butrans as a % of Publix Buprenorphine	Buprenorphine (ARCOS)	Publix Butrans as a % of All Buprenorphine
2007	191	-	0.0%	4,602	0.0%
2008	513	-	0.0%	6,847	0.0%
2009	675	-	0.0%	8,866	0.0%
2010	882	-	0.0%	11,413	0.0%
2011	1,050	83	7.9%	13,724	0.6%
2012	1,068	149	14.0%	15,086	1.0%
2013	1,138	223	19.6%	16,464	1.4%
2014	1,148	201	17.5%	17,055	1.2%
2015	1,218	231	19.0%	19,127	1.2%
2016	1,004	216	21.5%	20,184	1.1%
2017	1,031	195	18.9%	21,067	0.9%
2018	1,161	100	8.6%	22,153	0.5%
2019	1,541	75	4.9%	24,450	0.3%

149. The Lembke Report also mentions an Oxycontin promotion starting in 2004 where some coupons and savings cards were redeemed at Publix.<sup>148</sup> However, Dr. Lembke acknowledges that 85% of all of the related redemptions occurred at Walgreens and CVS, and in fact, only 43 coupons and 2 savings cards were redeemed in 2006 at a total of 18 Georgia Publix stores, not the “hundreds” of redemptions she implied in her report.<sup>149</sup> Furthermore, the document Dr. Lembke cites for support does not breakdown these redemptions by county or store, meaning she provides nothing that ties any Oxycontin coupons or savings card redemptions to a Cobb County Publix, let alone to red flags.<sup>150</sup>

150. Similarly, the Lembke Report associates a 2015 “Free Trial Card” offer for Hysingla,<sup>151</sup> a name-brand extended-release hydrocodone prescription product, as a gateway to

<sup>148</sup> Lembke Report p. 102 at § C.6.c.v.A-B.

<sup>149</sup> Lembke Deposition at 53:7-17.

<sup>150</sup> Because the Publix Dispensing Data has few 2006 records (none for Oxycontin), there is no contemporaneous data for further investigation.

<sup>151</sup> Lembke Report p. 102 at § C.6.c.v.E. Hysingla was a new product released in 2015 with certain abuse-deterrent properties: “Hysingla ER by Purdue Pharma LP.” *PharmacyTimes.gov*.  
<https://www.pharmacytimes.com/view/hysingla-er-by-purdue-pharma-lp>.

addiction.<sup>152</sup> Once again, Dr. Lembke fails to quantify if this promotion led to a statistically significant change in Cobb County Publix pharmacy actions. According to the Publix Dispensing Data, in 2015, there were only 12 Hysingla prescriptions filled in Cobb County Publix pharmacies, all for the lowest dosage, and in 2016 there were only 15 prescriptions. In total, **Figure 28** shows that there were only 176 Hysingla prescriptions filled between 2006 and 2019, comprising less than two-tenths of one percent of all opioid prescriptions filled and dosage units dispensed at all Cobb County Publix. In other words, the impact of this “collaboration” was negligible with regard to the number of opioid prescriptions filled at Cobb County Publix. While, at most, it is theoretically possible that without the promotion different brands of opioids would have been prescribed, Dr. Lembke cites no evidence that the total number of opioid scripts or red flags would have been any different without the 2015 promotion.

**Figure 28: Hysingla Filled by Publix in Cobb County, 2006 to 2019**

NDC	Product Name	Rx	Rx as a % of Total Opioid Rx Filled by Publix in Cobb County	Dosage Units	Dosage Units as a % of Total Opioid Rx Filled by Publix in Cobb County
59011027160	HYSINGLA ER 20 MG TABLET	104	0.0155%	3,054	0.0107%
59011027260	HYSINGLA ER 30 MG TABLET	33	0.0049%	988	0.0035%
59011027360	HYSINGLA ER 40 MG TABLET	31	0.0046%	920	0.0032%
59011027460	HYSINGLA ER 60 MG TABLET	7	0.0010%	180	0.0006%
59011027560	HYSINGLA ER 80 MG TABLET	1	0.0001%	30	0.0001%
59011027660	HYSINGLA ER 100 MG TABLET	-	0.0000%	-	0.0000%
59011027760	HYSINGLA ER 120 MG TABLET	-	0.0000%	-	0.0000%
<b>Total</b>		<b>176</b>	<b>0.0263%</b>	<b>5,172</b>	<b>0.0182%</b>

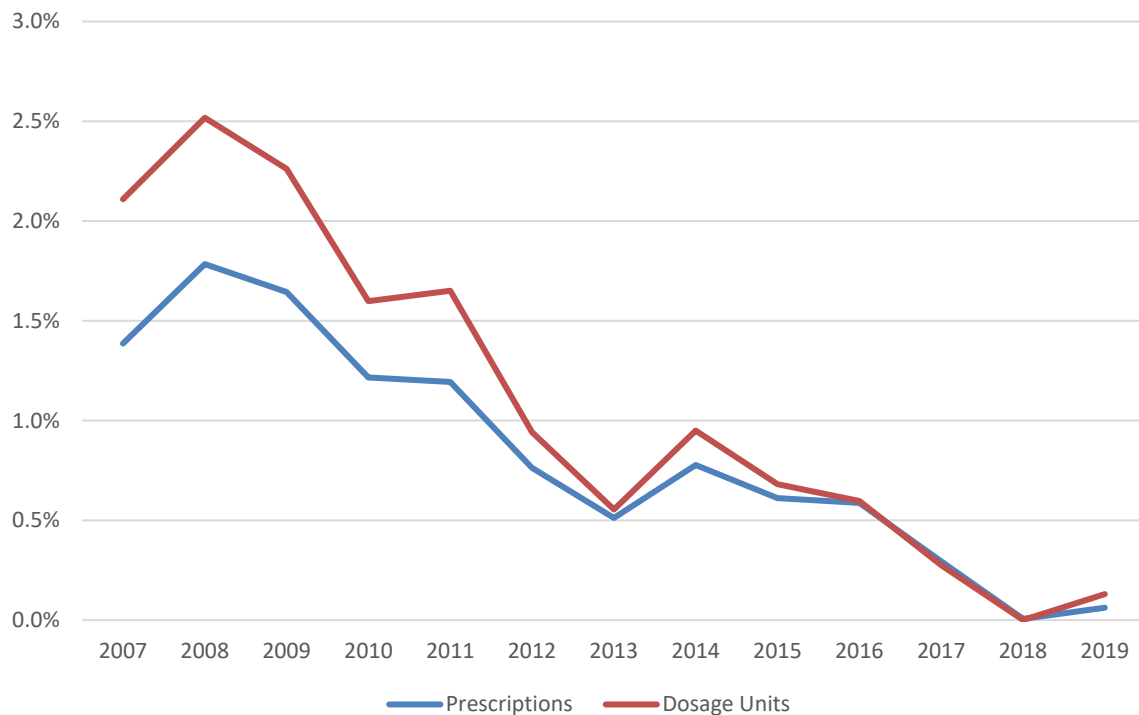
151. Finally, in her report and deposition, Dr. Lembke claims that Endo Pharmaceuticals collaborated with Publix, pointing to 2003 Percocet call notes.<sup>153</sup> However, as **Figure 29** show, the percentage of Percocet (oxycodone), Percodan (oxycodone), and Opana (oxymorphone), collectively “Endo Products,” in terms of prescriptions and dosage units

<sup>152</sup> The Lembke Report makes a false-equivalence analogy to free samples from a drug dealer (Lembke Report p. 102 at § C.6.c.v.F., referencing § C.5.b). For Hysingla and other opioids, a prescription had to be written by a doctor. The pharmacist could not give out samples at-will.

<sup>153</sup> Lembke Report § C.6.xxvii.h.A; Lembke Deposition at 84:23 – 87:22; Lembke Deposition Exhibit 19 (ENDO-OPIOID\_MDL\_07391949).

generally declined when compared to similar oxycodone and oxymorphone products over the 2007 to 2019 period. Therefore, as with the other Lembke Report claims I have documented, Dr. Lembke has not provided quantitative backing to support the notion that anything Endo Pharmaceuticals did impacted dispensing behavior at Publix.

**Figure 29: Endo Product Prescriptions and Dosage Units as a Percentage of Total Oxycodone and Oxymorphone Prescriptions Filled by Publix in Cobb County, 2007 to 2019**



## **XI. Conclusions**

152. In this report, I have shown that Plaintiffs have not put Publix dispensing of opioids into context. Plaintiff's experts provide large numbers, such as prescriptions for the county, or dosage units or MME, which are multiples of the number of prescriptions, but do not provide meaningful statistical or practical context for interpreting such numbers.

153. Mr. Catizone and Dr. McCann present red flag counts that do not hold up to scrutiny. First, Dr. McCann misapplies a number of Mr. Catizone's criteria by not taking temporal logic into account. He makes additional errors by not looking closely at the data, but simply running the numbers. To the extent that Plaintiff or Plaintiff's experts intimate that red



flags are the equivalent to diversion, they have produced no statistical evidence that can translate the red flag rate to a diversion rate.

154. The Keller Report is simply a set of lists that are devoid of any context as to how they relate to Publix. Upon further investigation, the selected prescribers had the vast majority of their prescriptions filled outside of Cobb County Publix pharmacies. Ms. Keller's analyses, like the red flag analyses of Dr. McCann and Mr. Catizone, lack statistical basis for interpretation. Ms. Keller's review of select doctors and recitation of prescription counts are misleading without essential context and deeper statistical analysis.

155. Finally, I have shown that Plaintiff's experts rely on no supporting data, documents, or analysis in making claims regarding Publix pharmacists' actions in response to bonuses and marketing promotions.

I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct.

Executed this 24<sup>th</sup> day of June, 2024, in Chicago, Illinois.

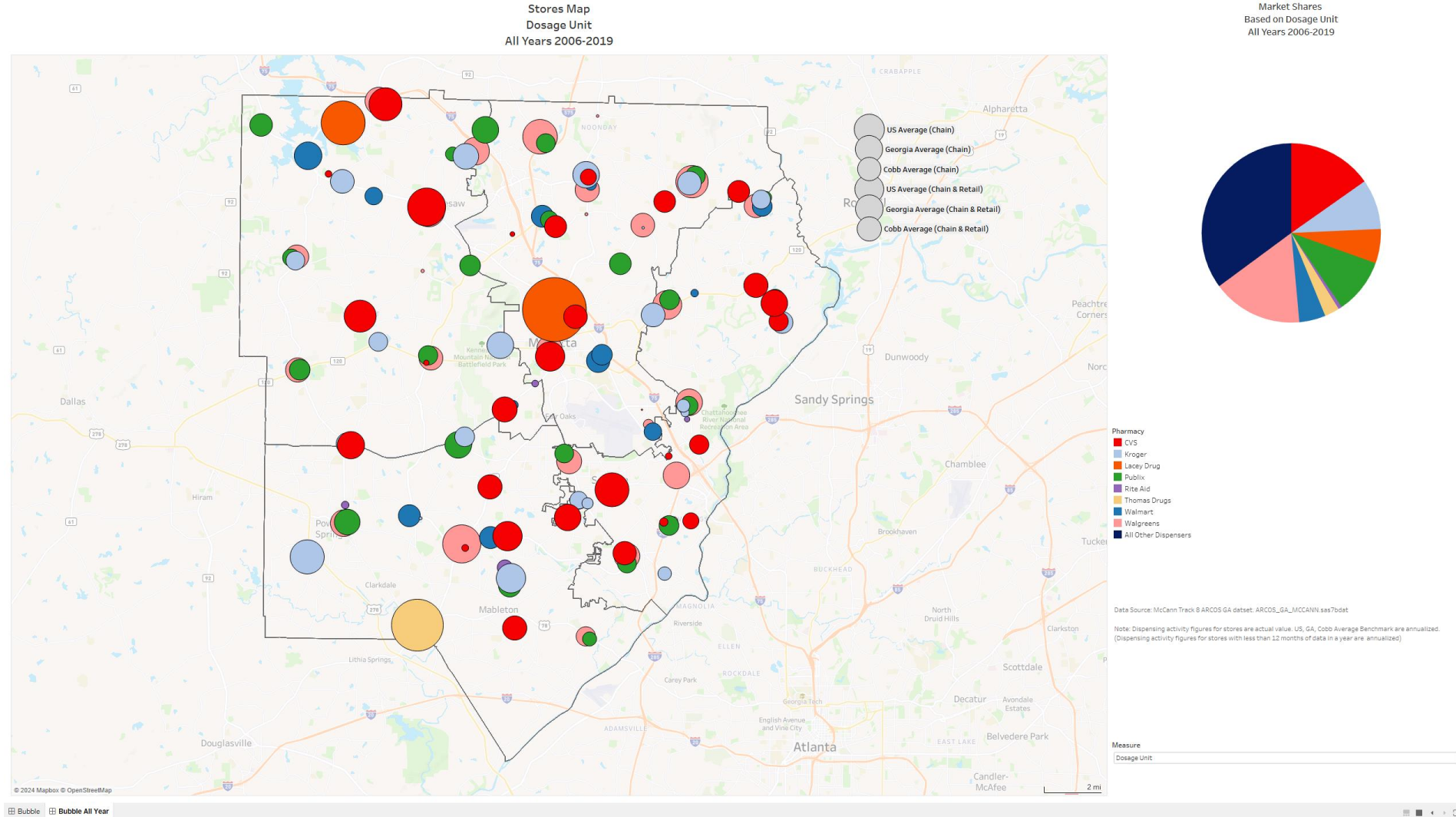


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Candice L. Rosevear

**Exhibit 1: Cobb County Map for Select Pharmacies**

The bubble size corresponds to **Dosage Units** dispensed in the given period.



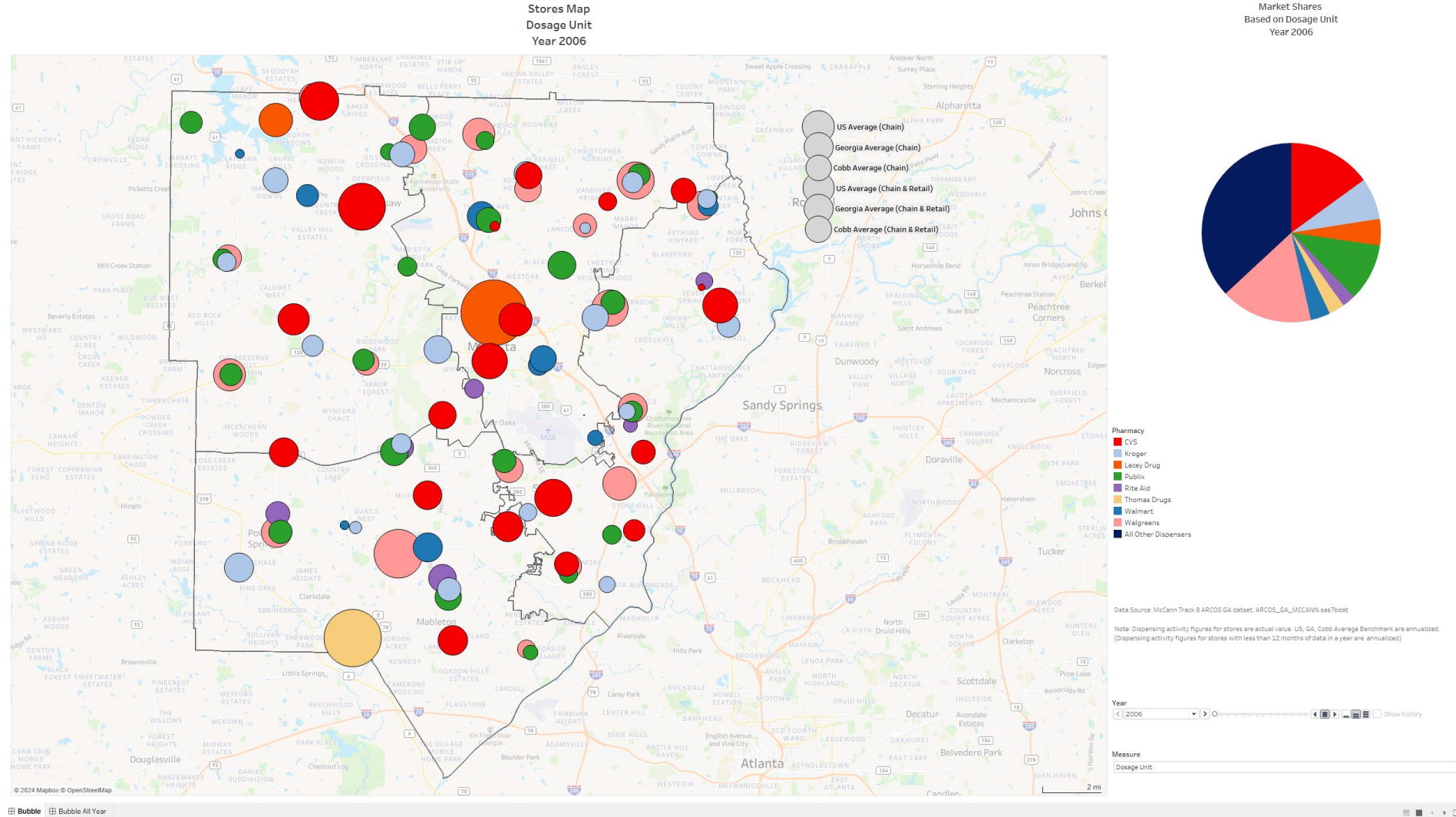


Exhibit 1 - Page 3 of 32



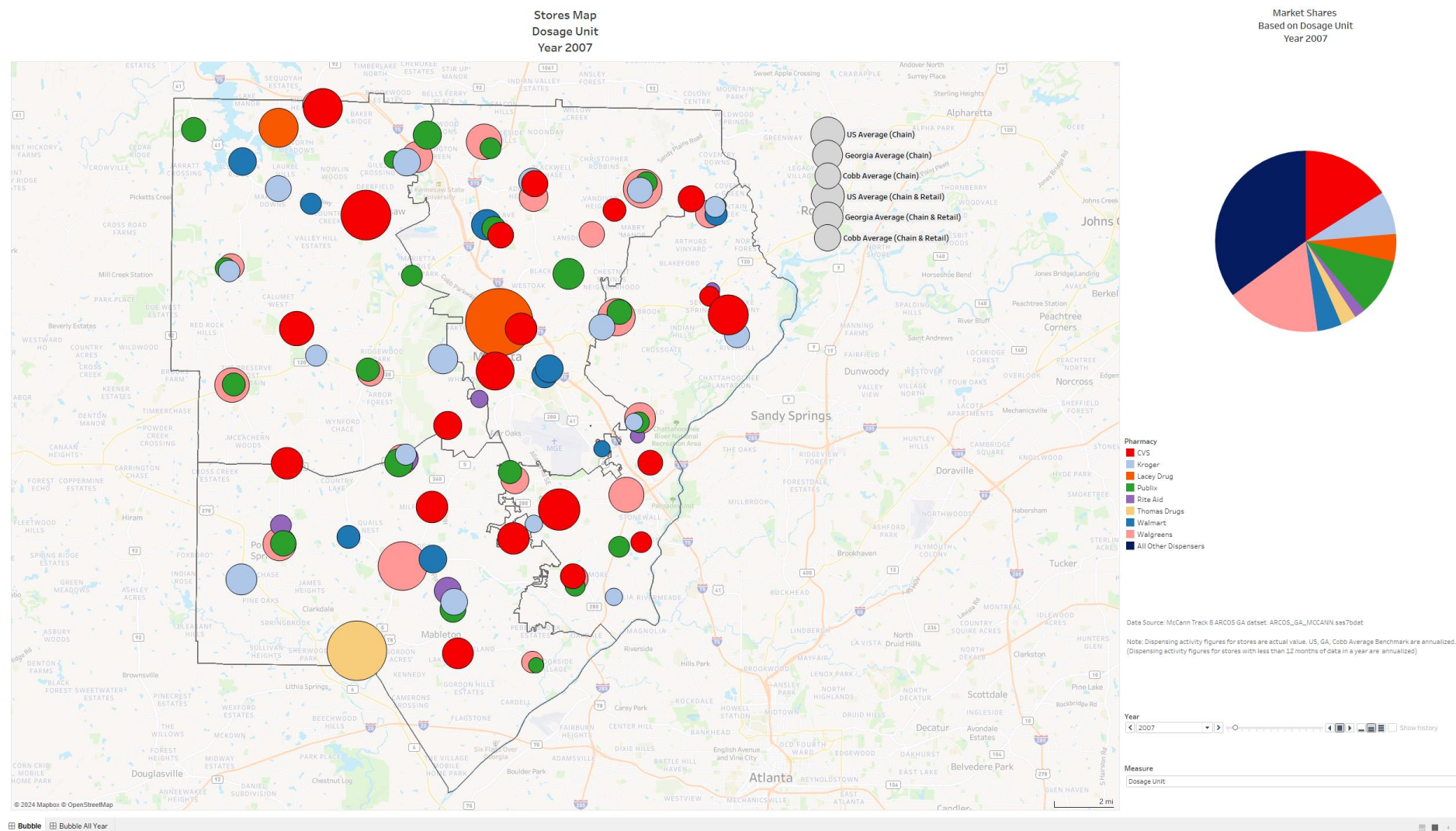


Exhibit 1 - Page 4 of 32

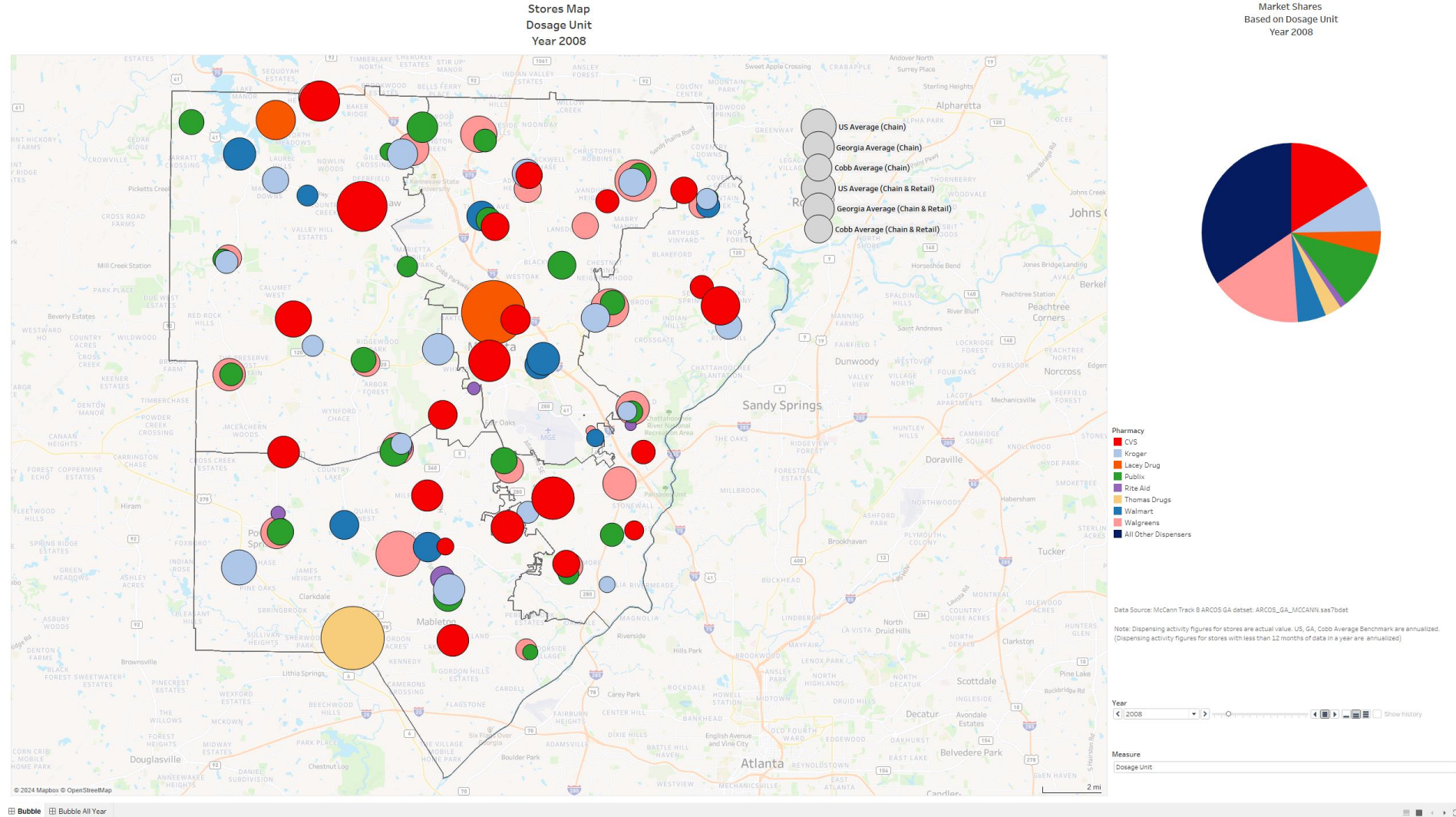


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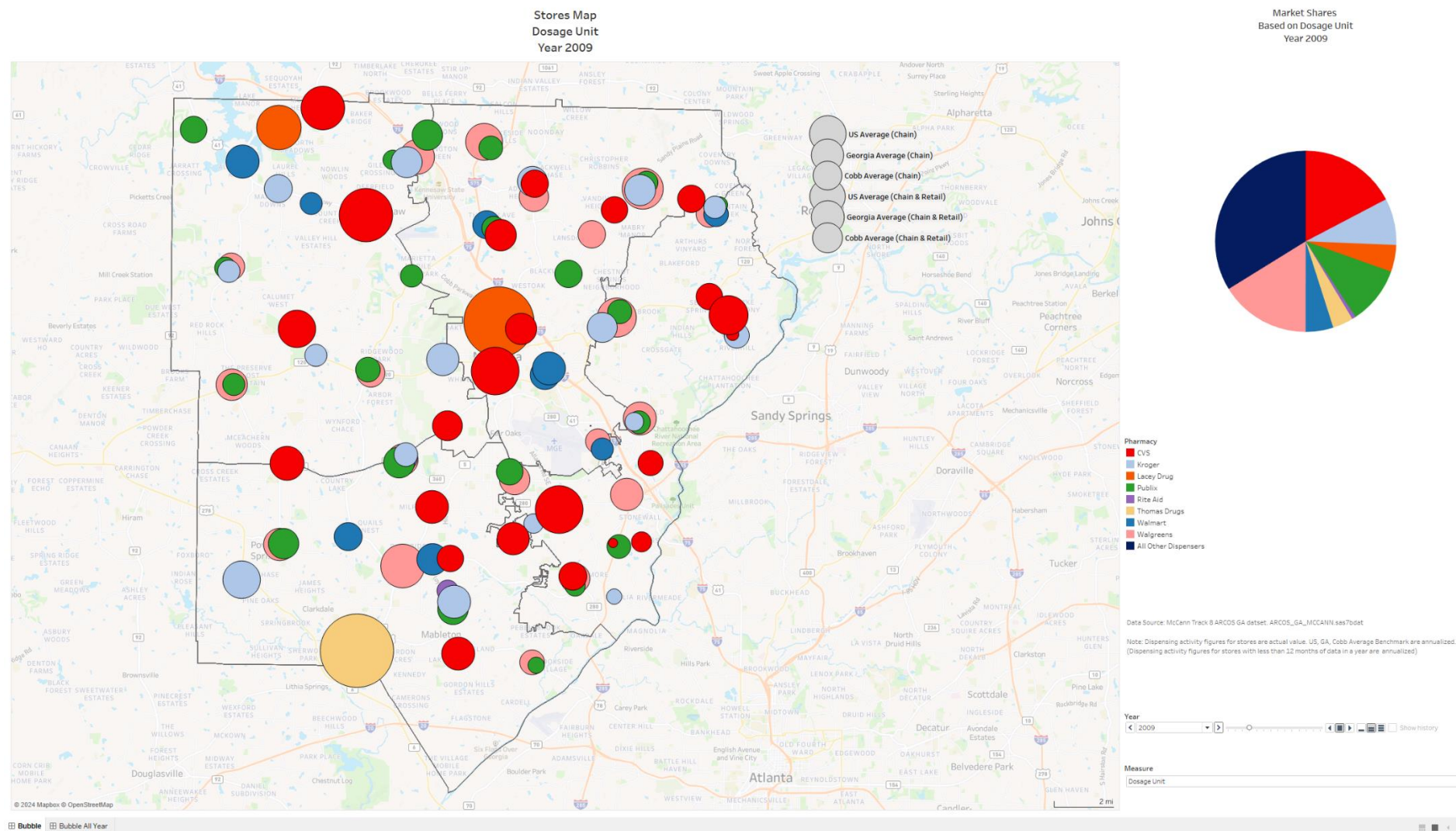


Exhibit 1 - Page 6 of 32



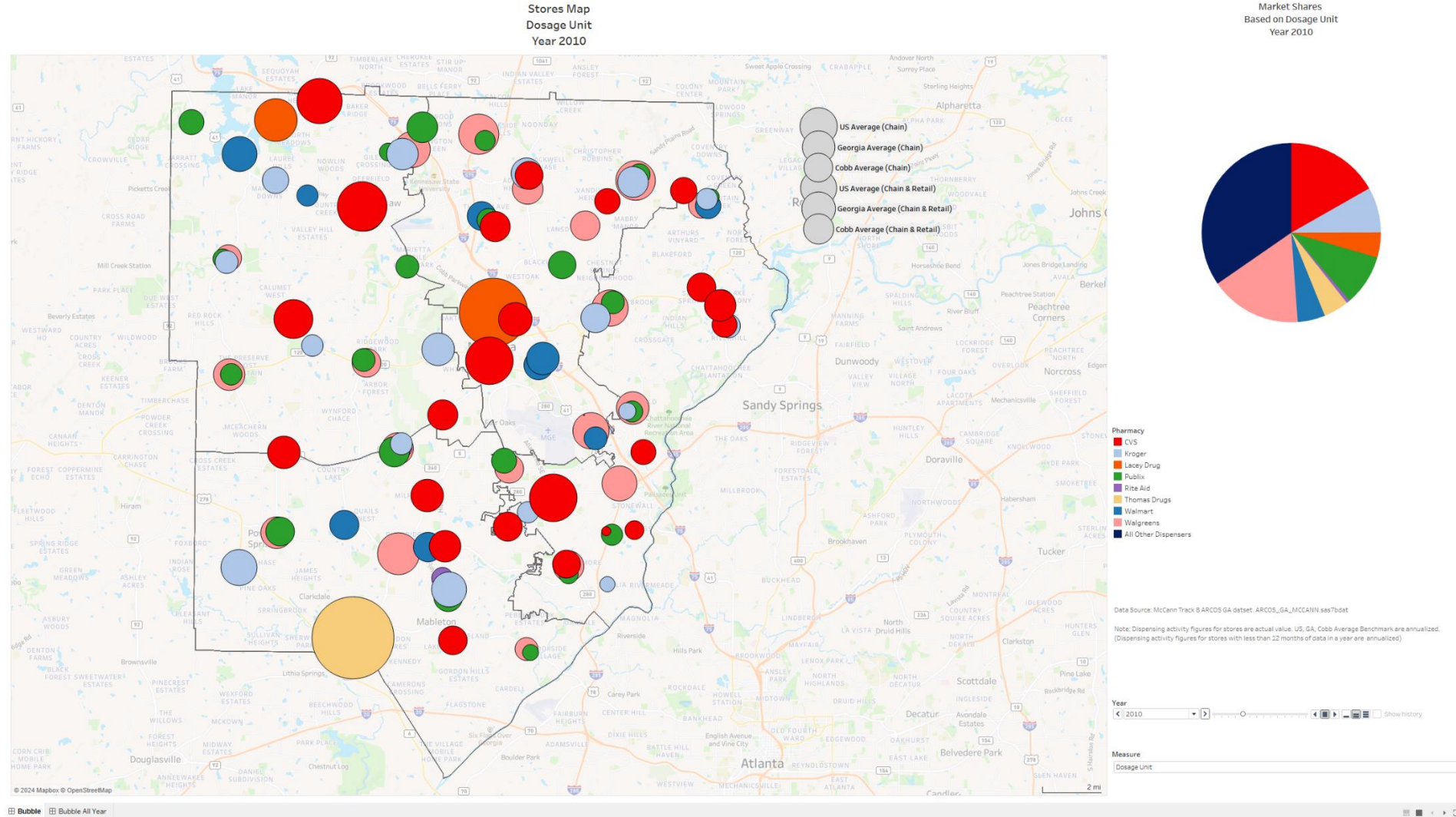


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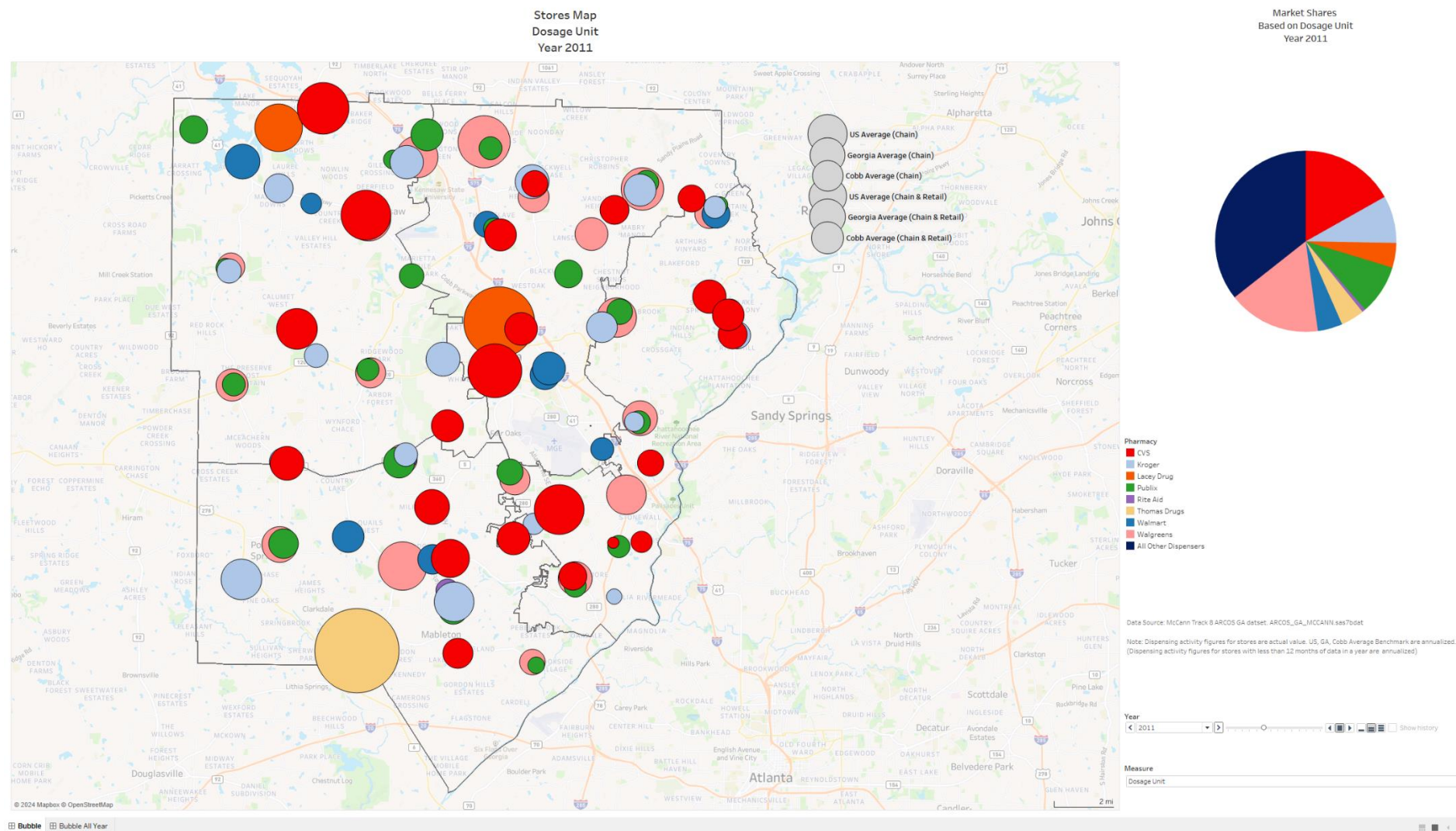


Exhibit 1 - Page 8 of 32



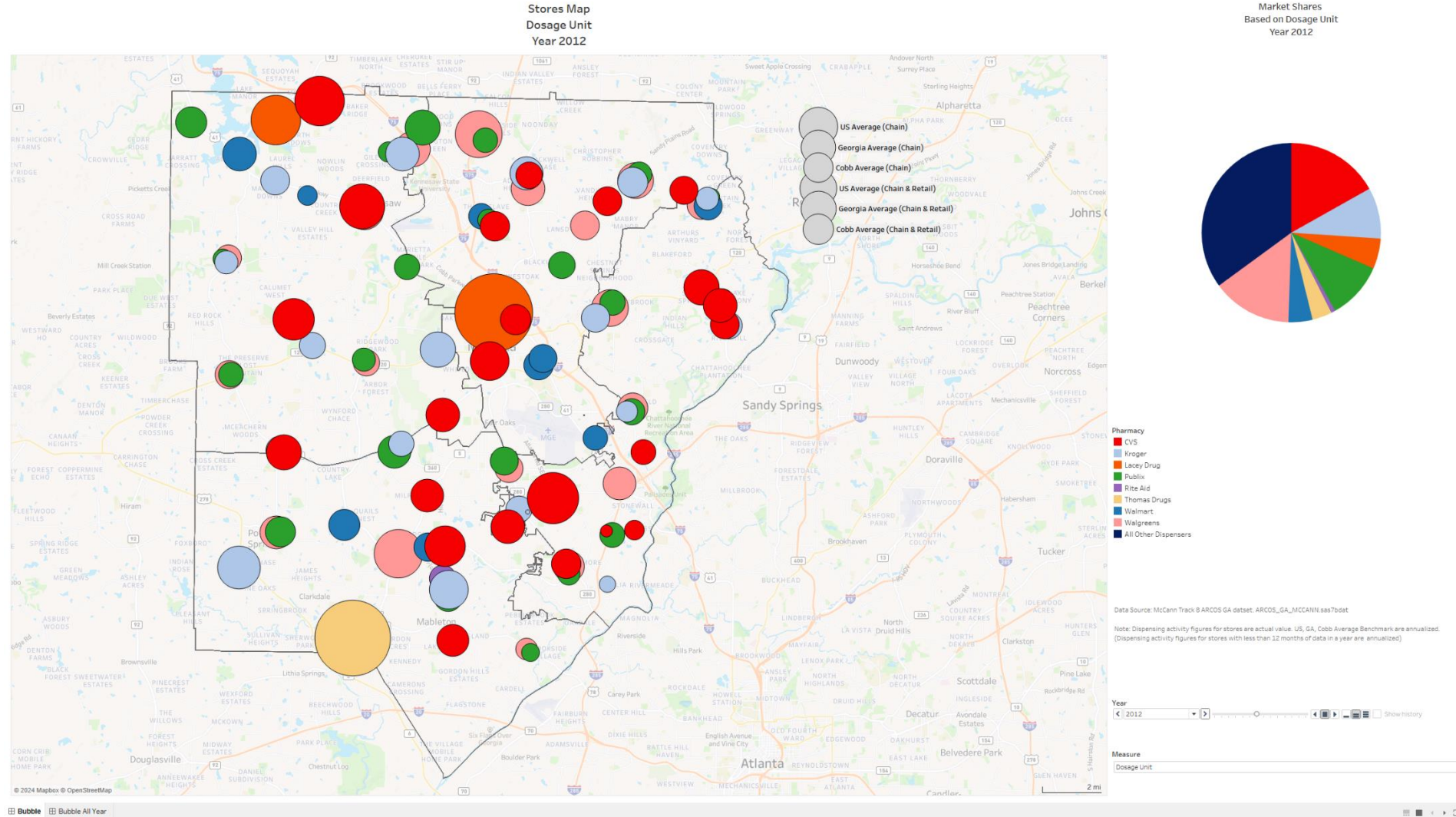
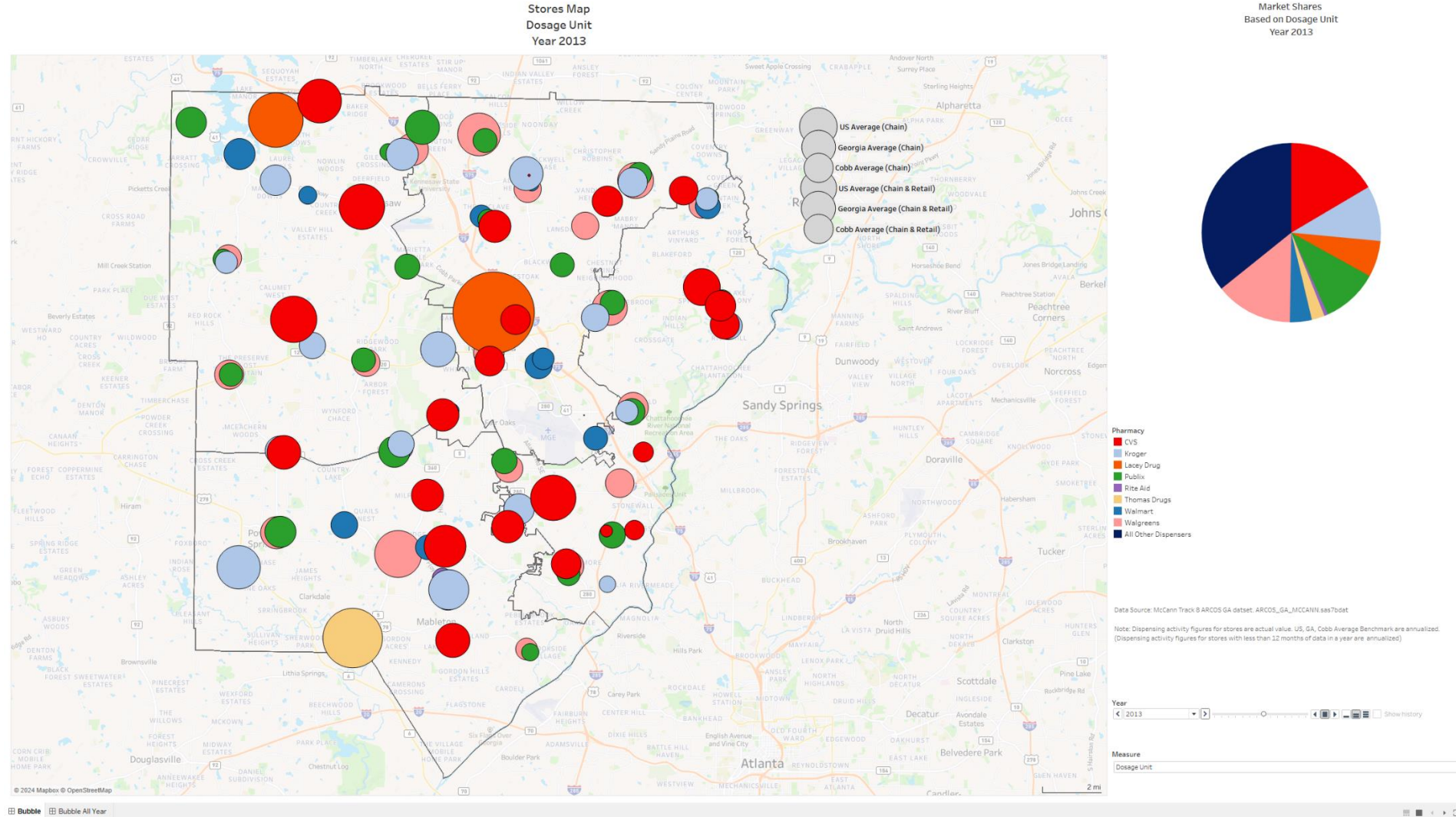
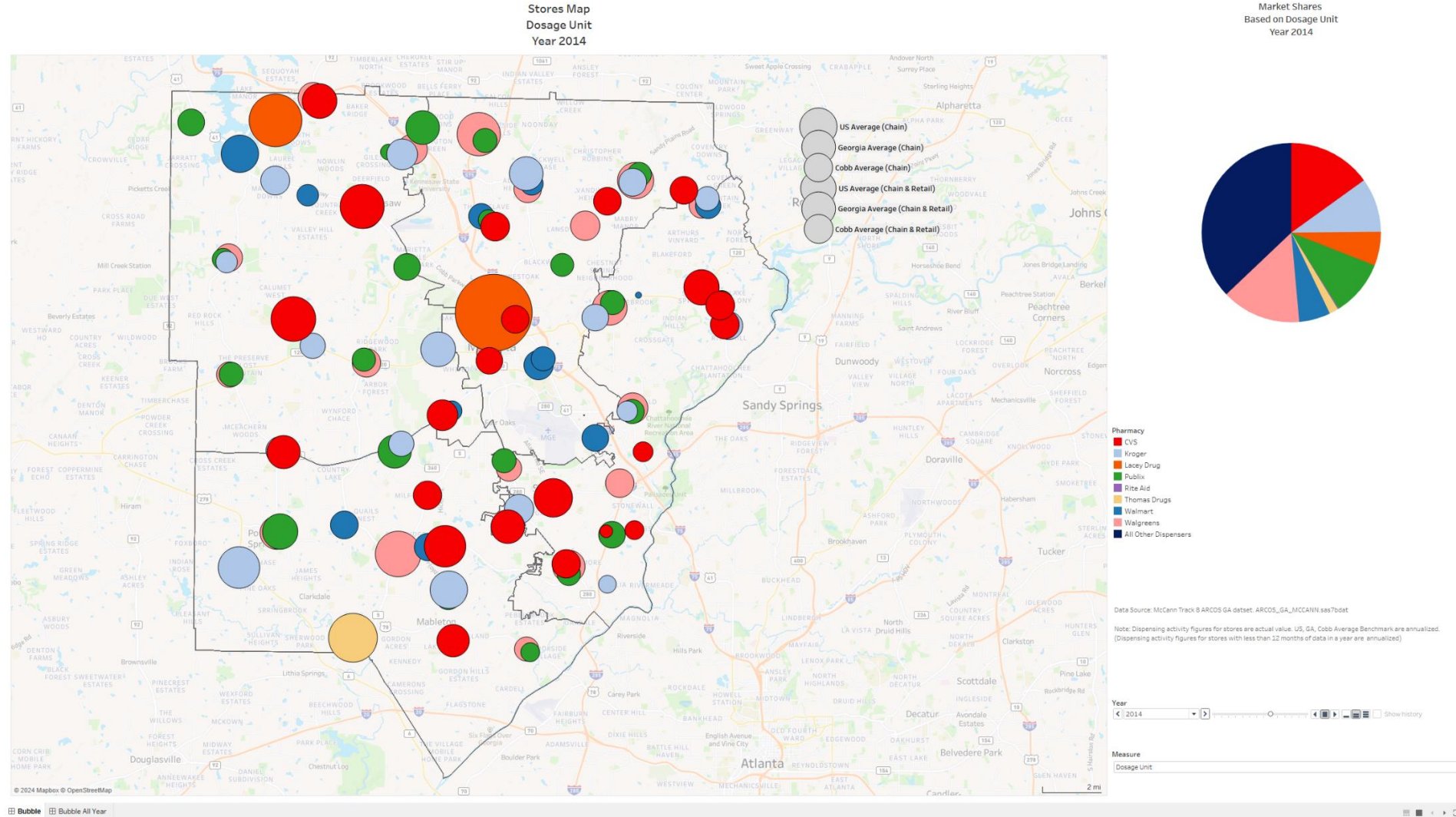
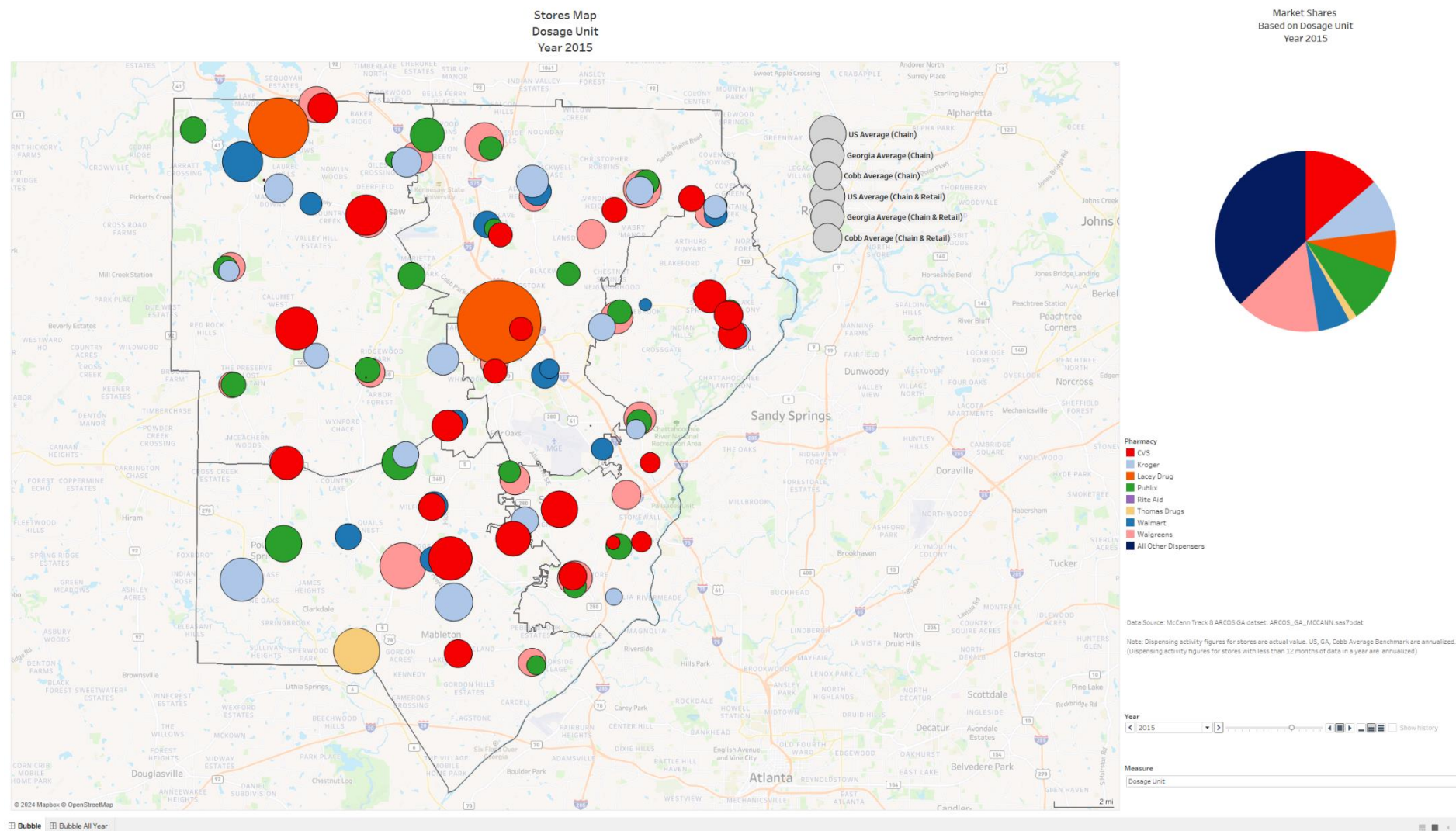


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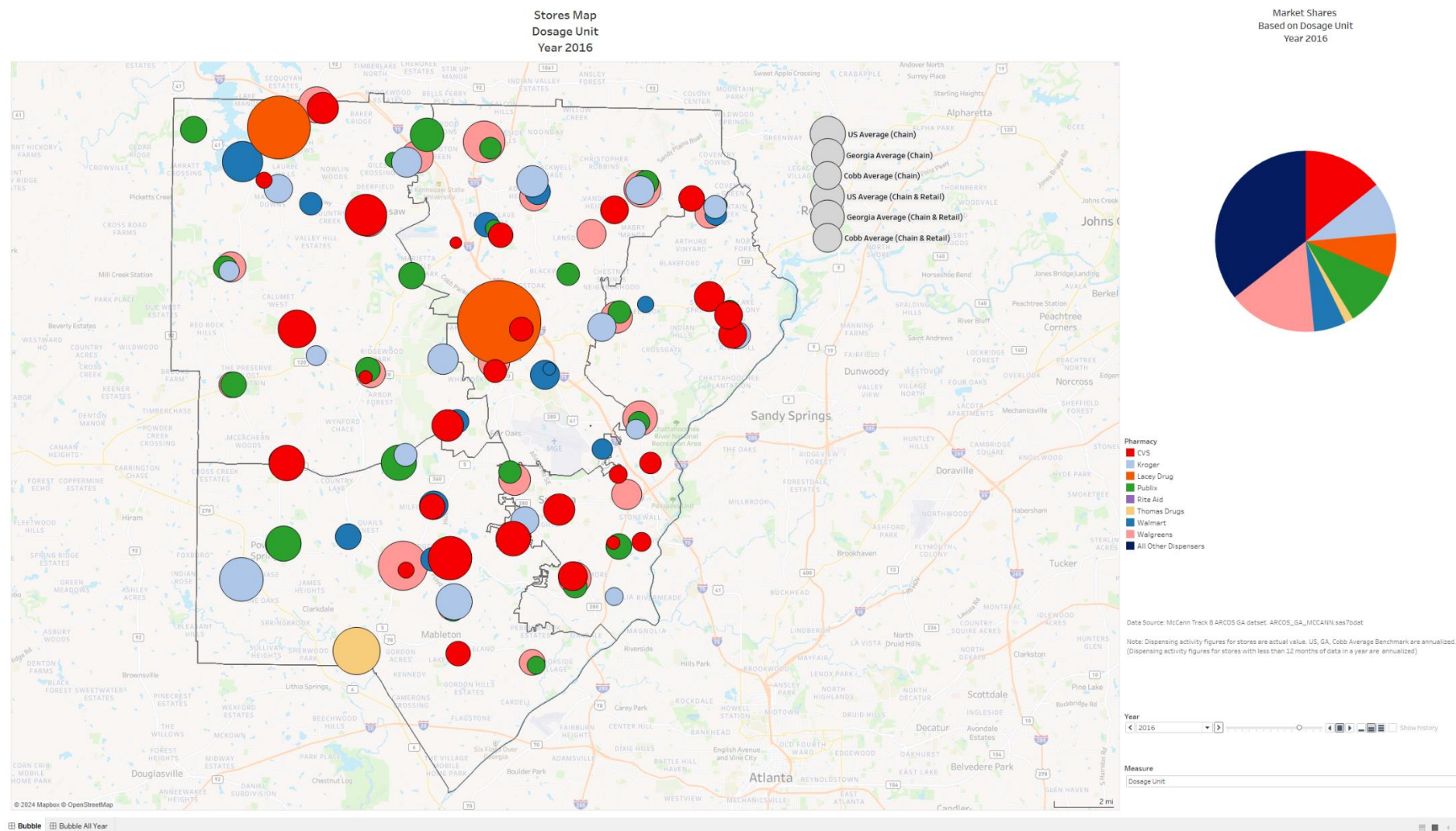




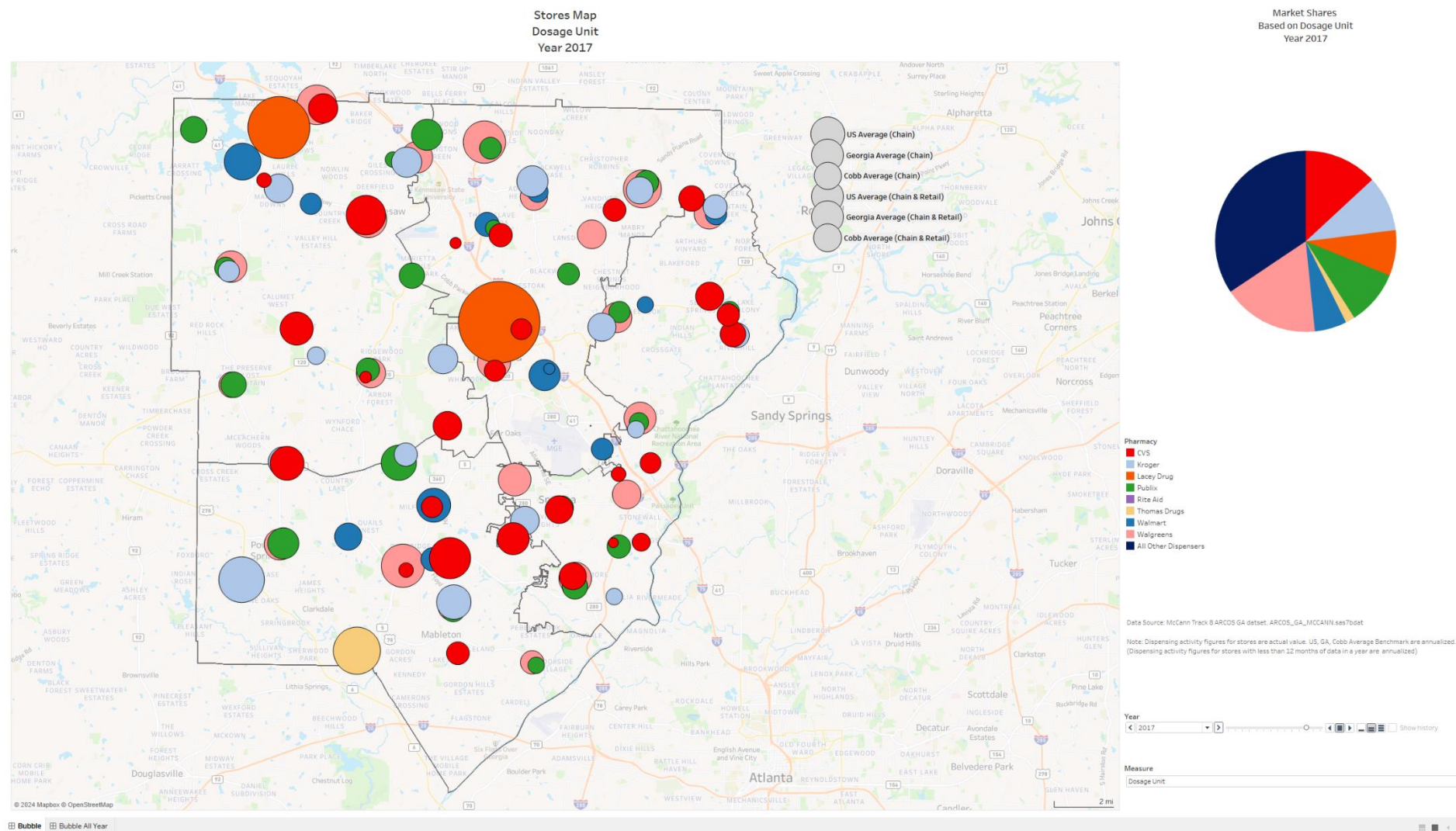


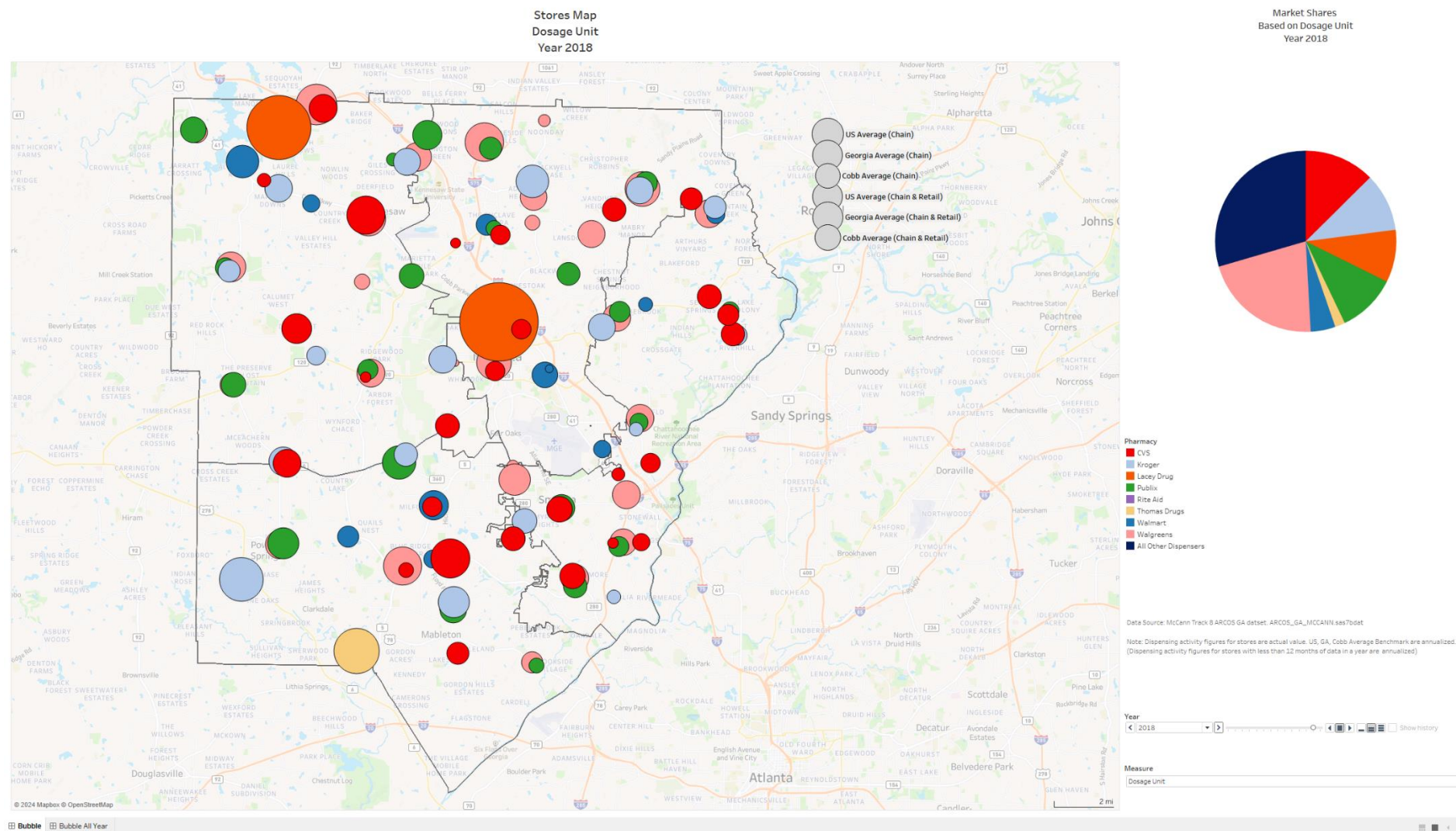




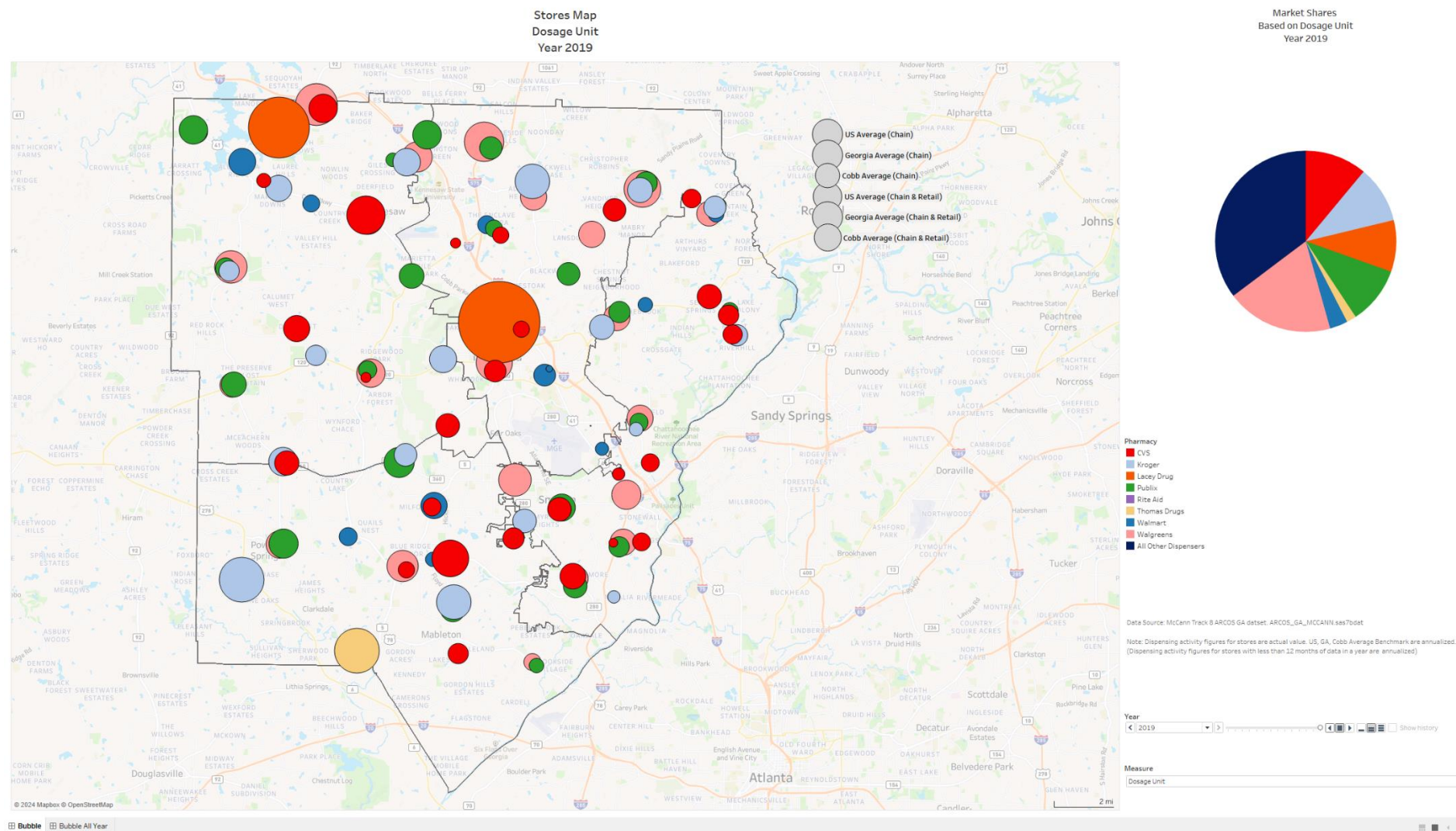






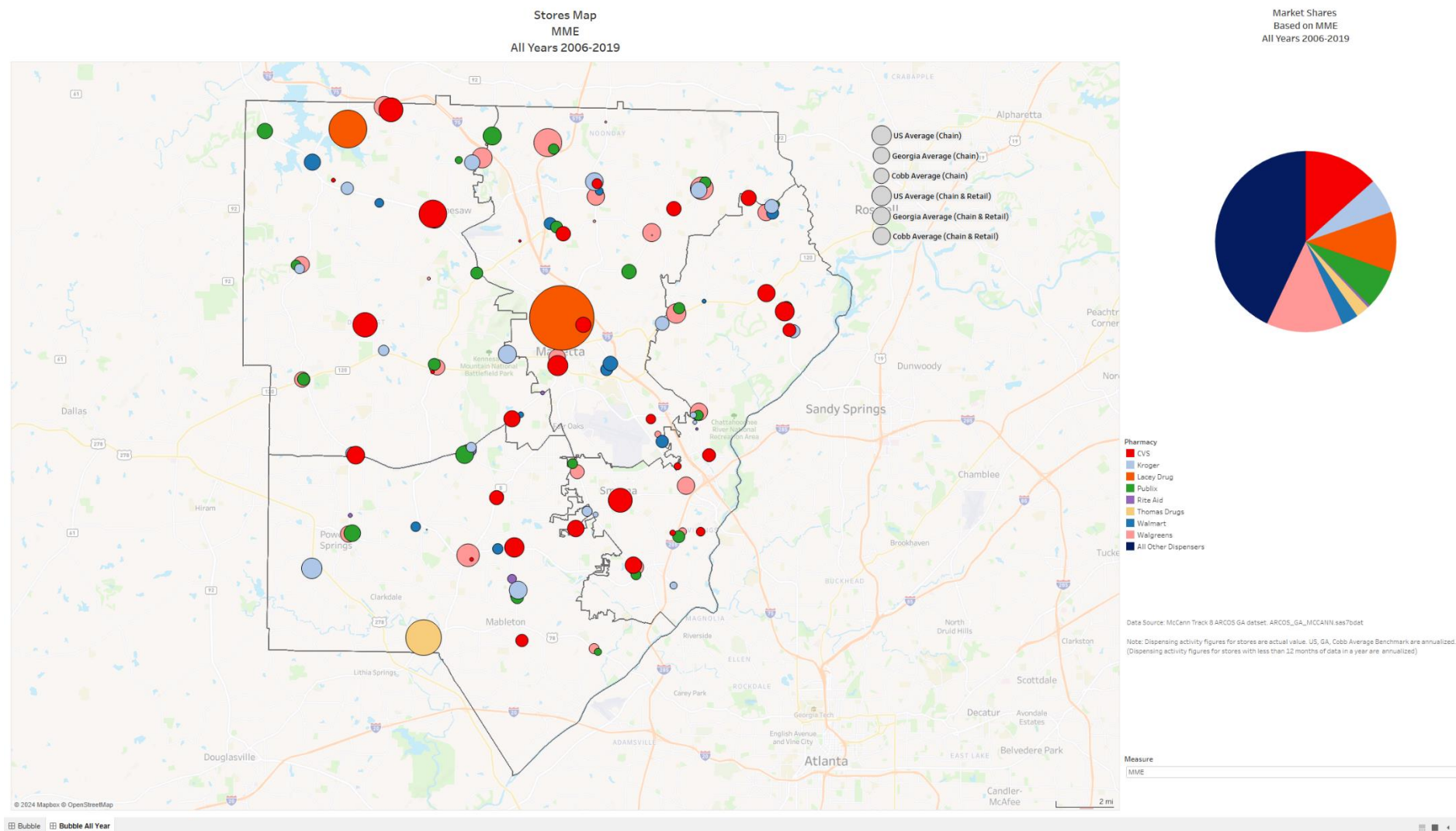




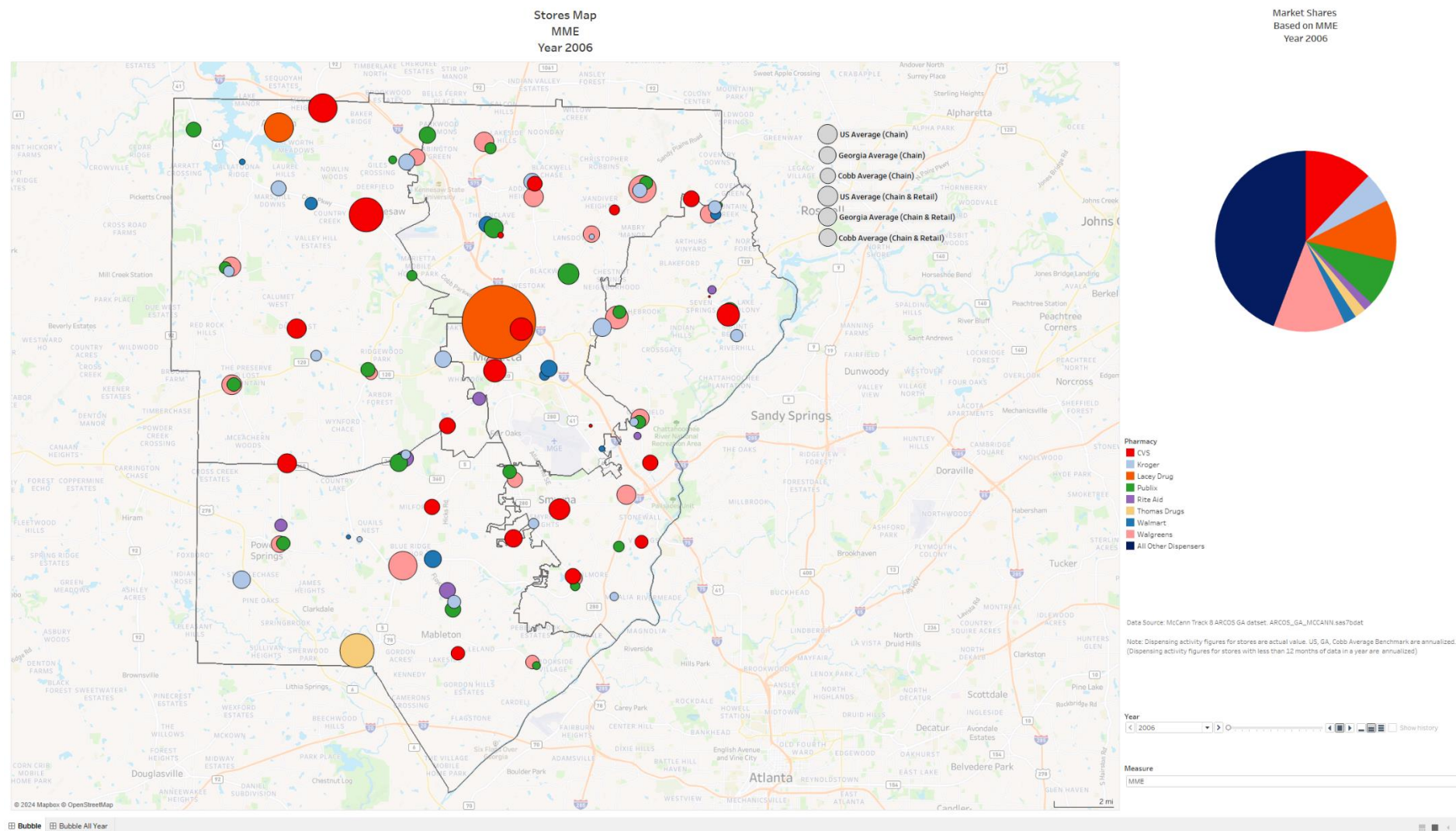


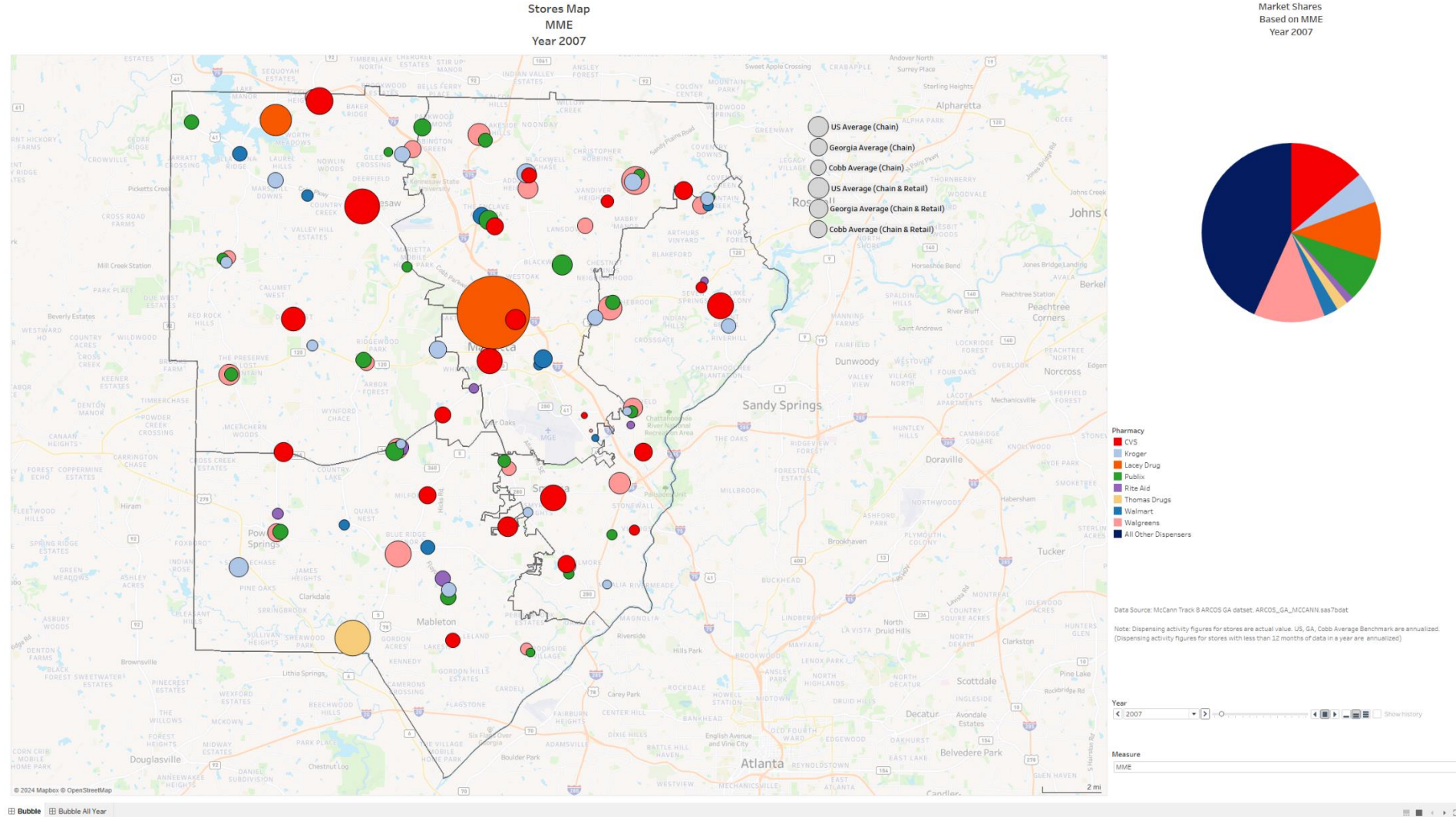
**Cobb County Map for Select Pharmacies**

The bubble size corresponds to **MME** dispensed in the given period.

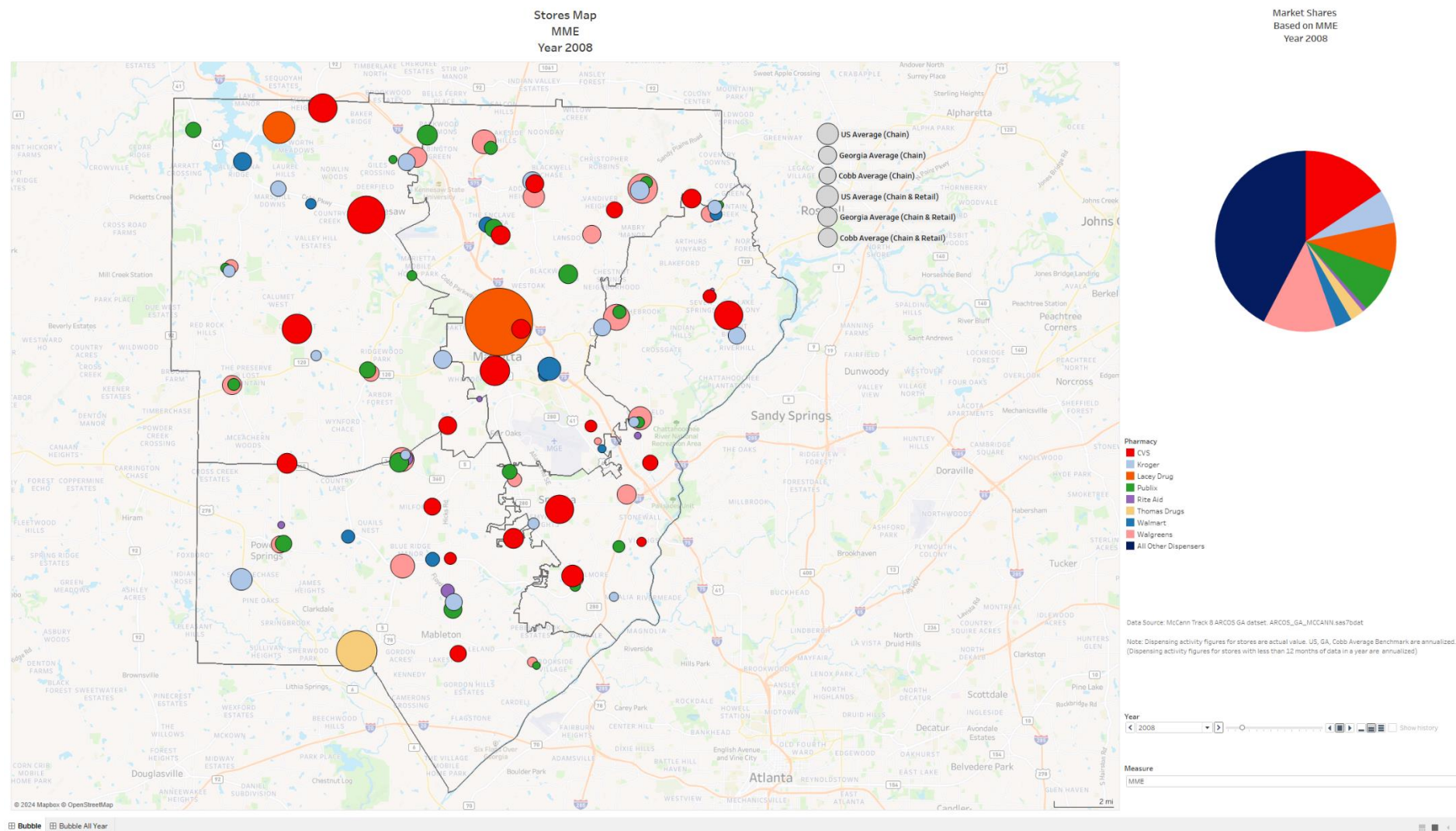


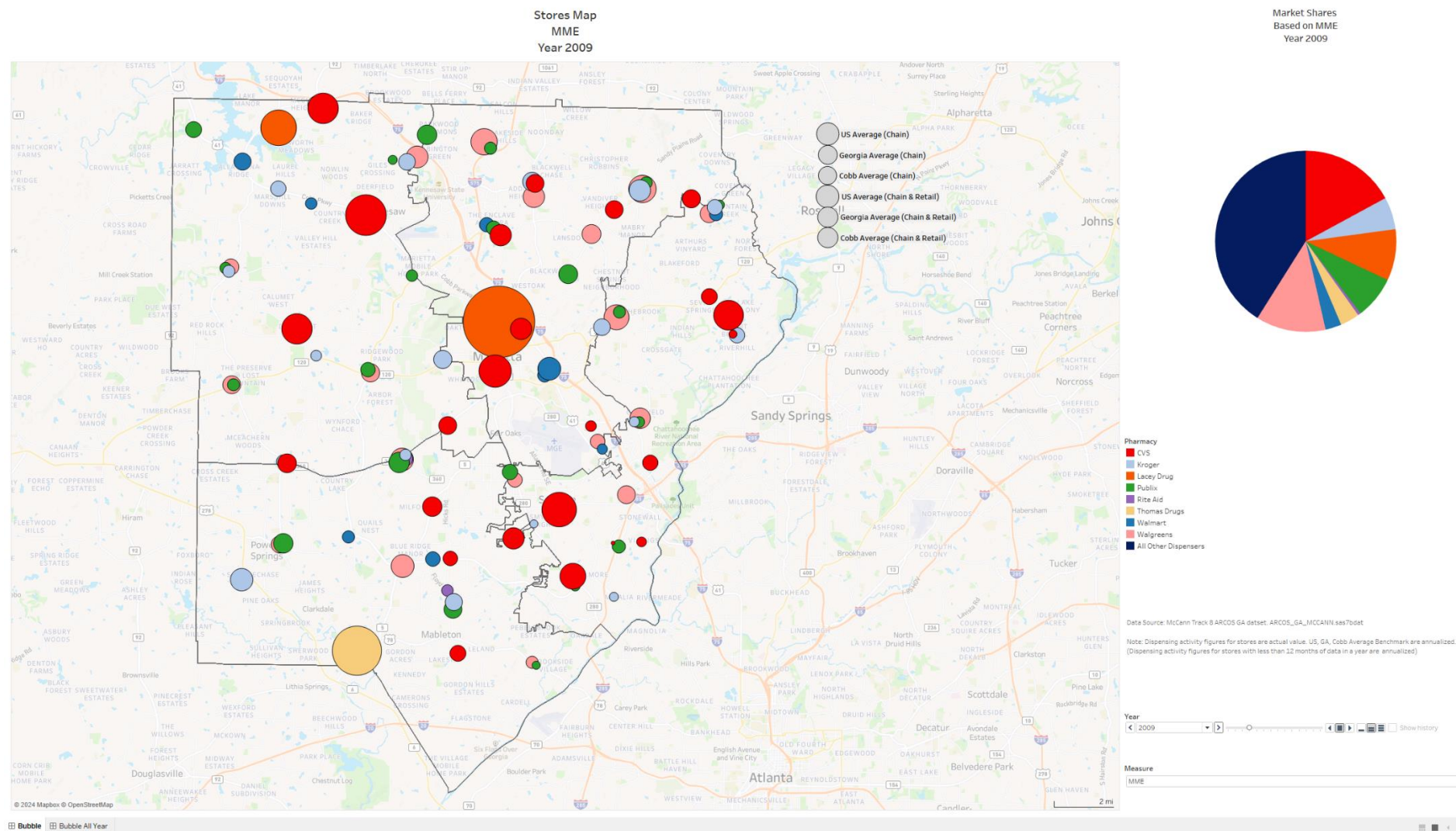




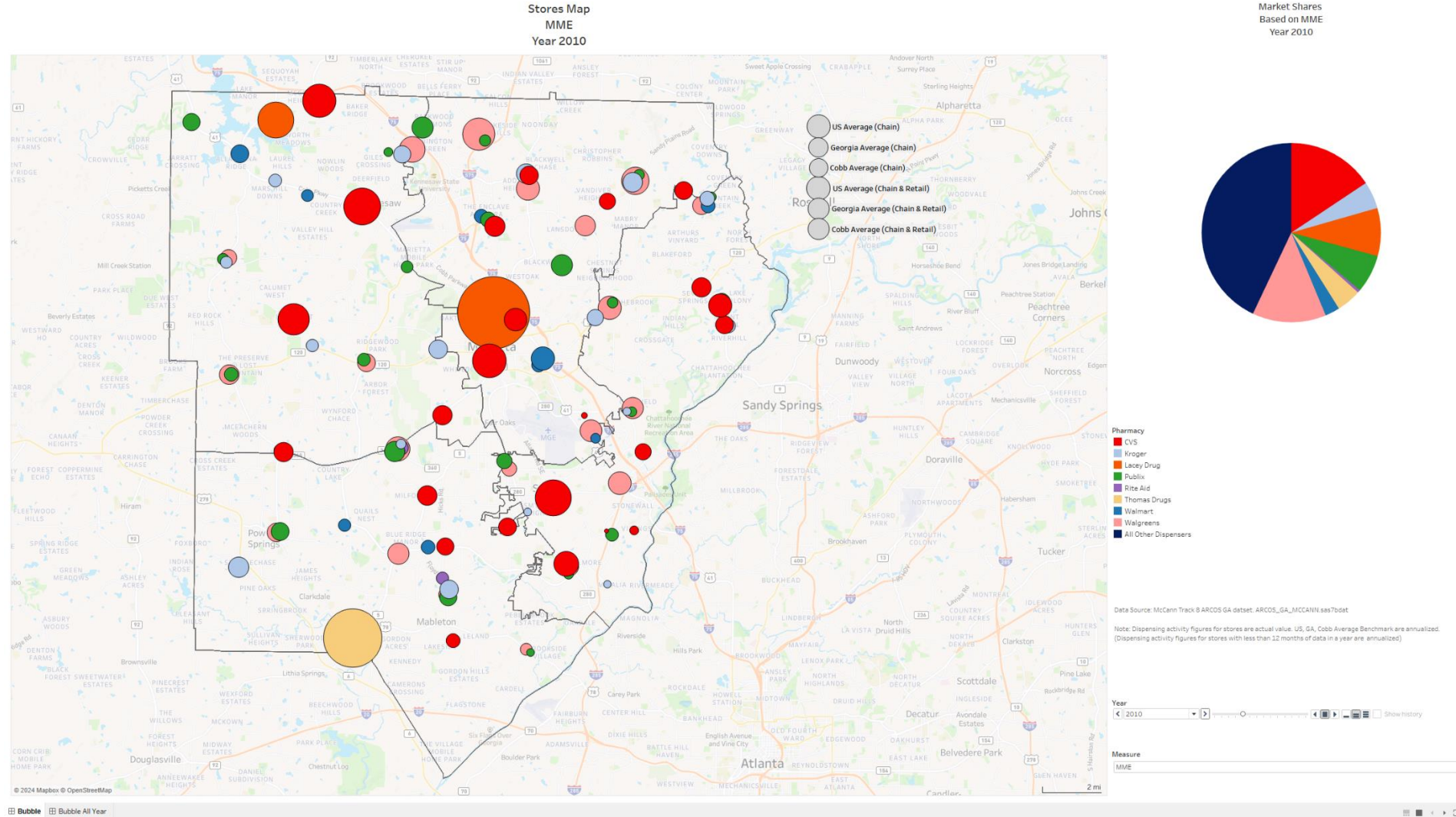


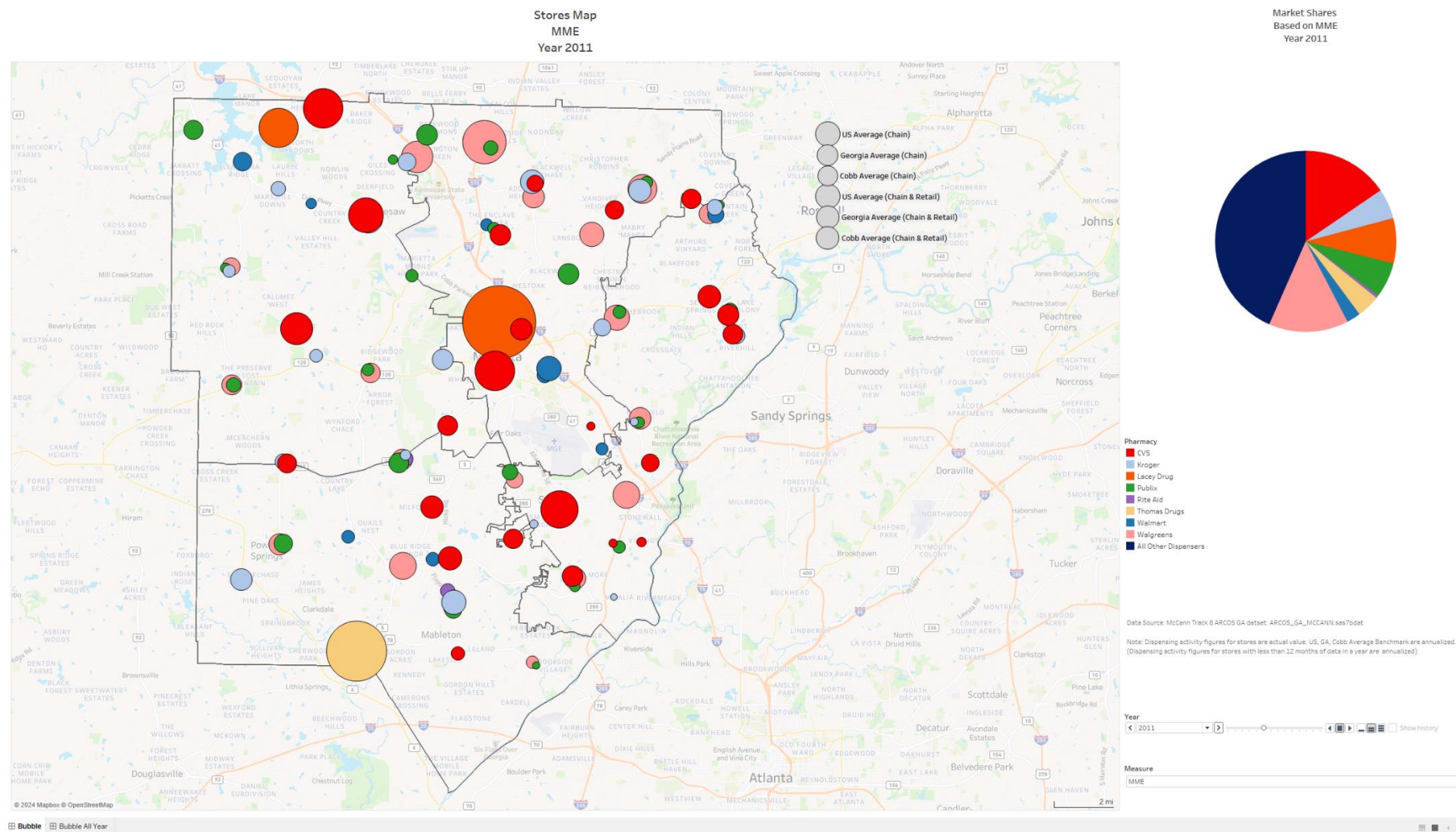




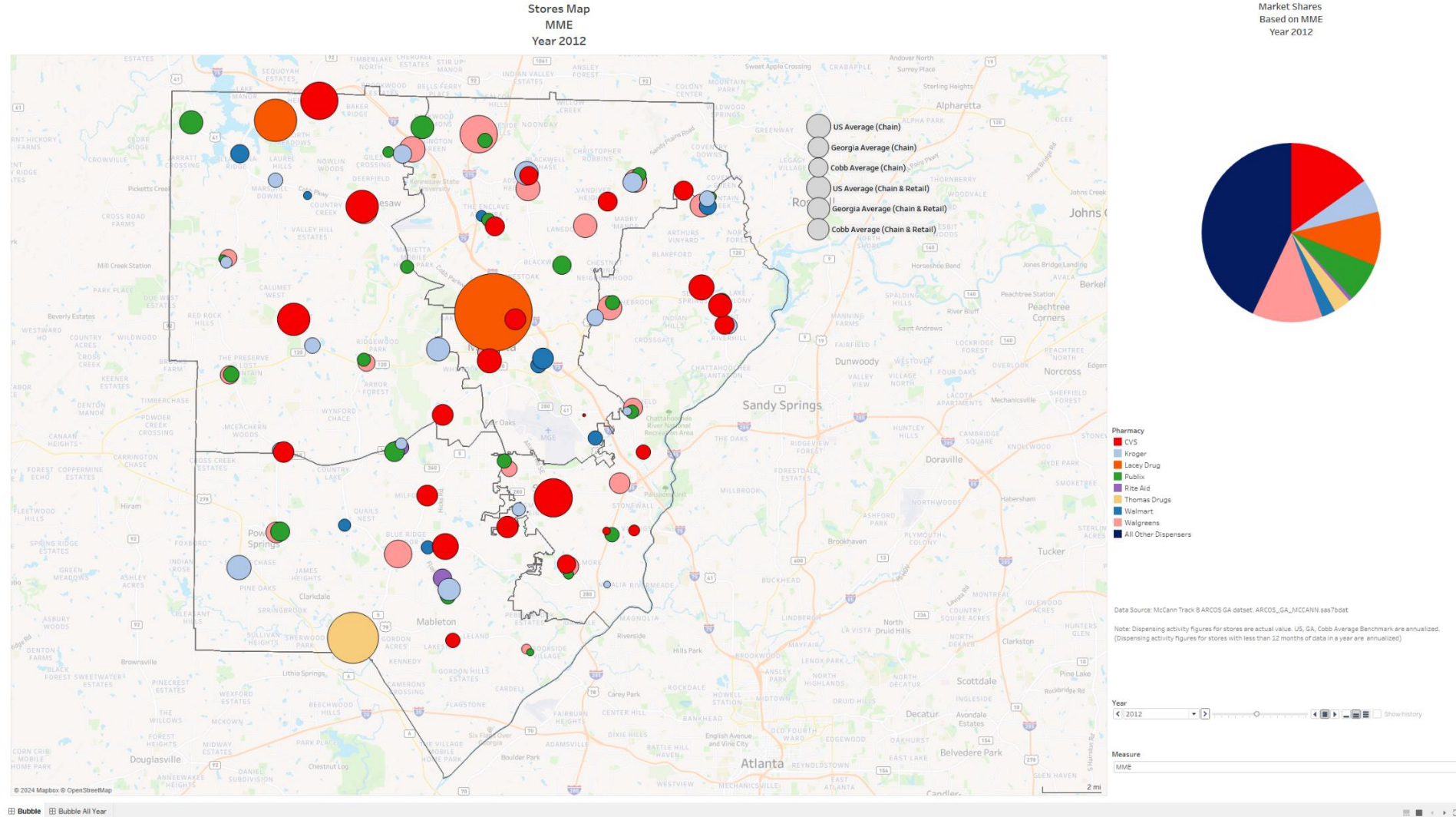


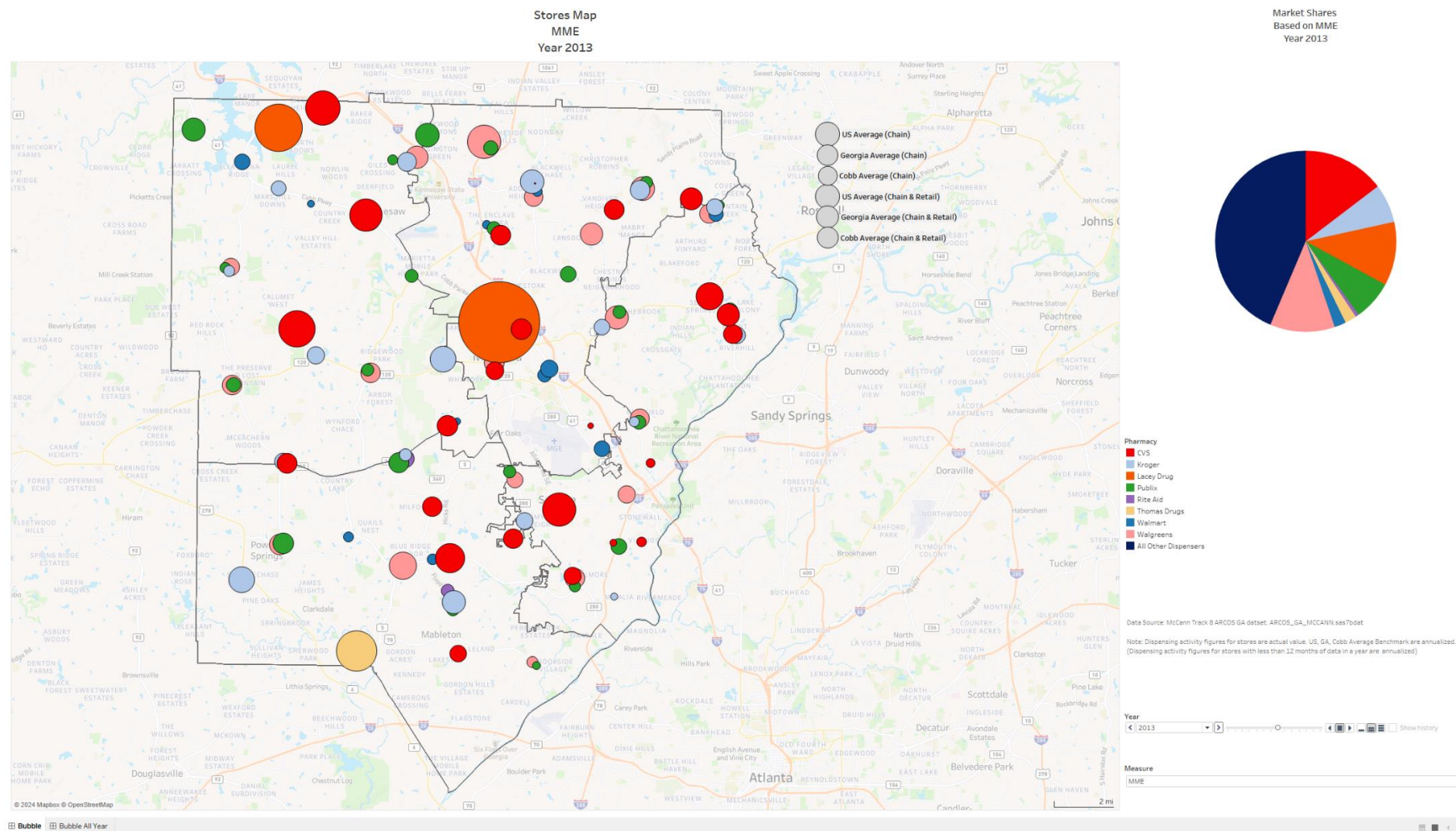




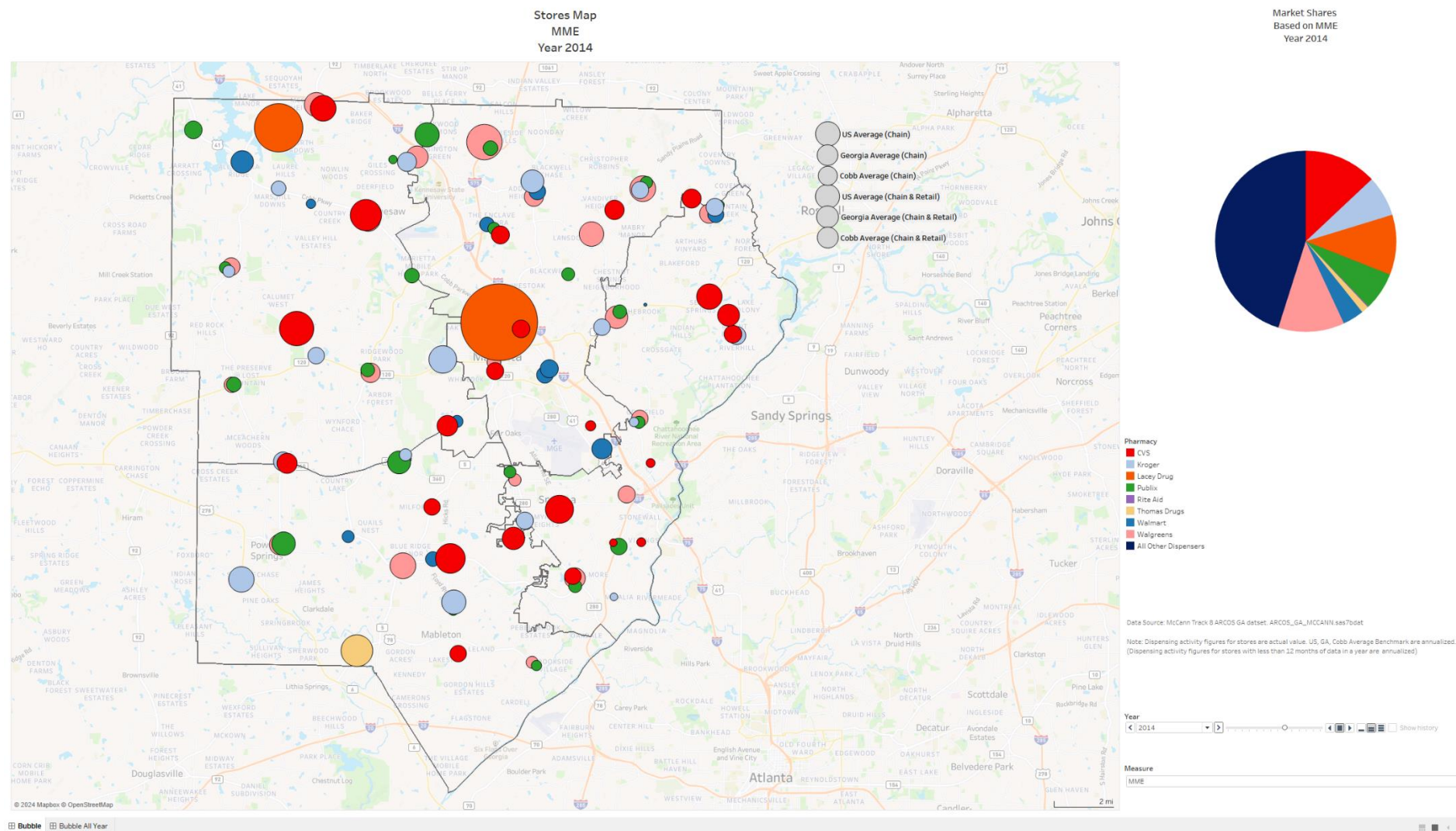




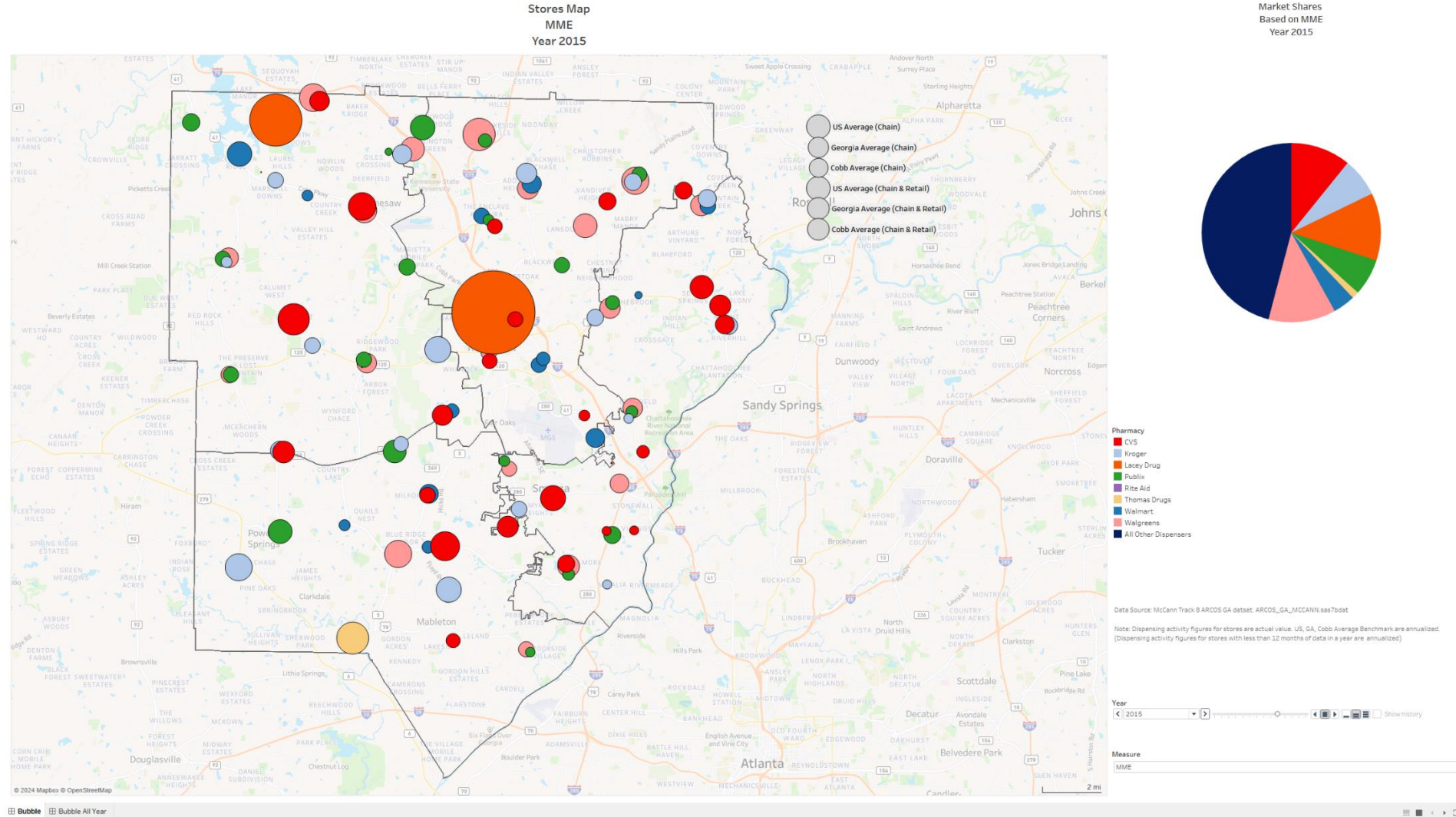


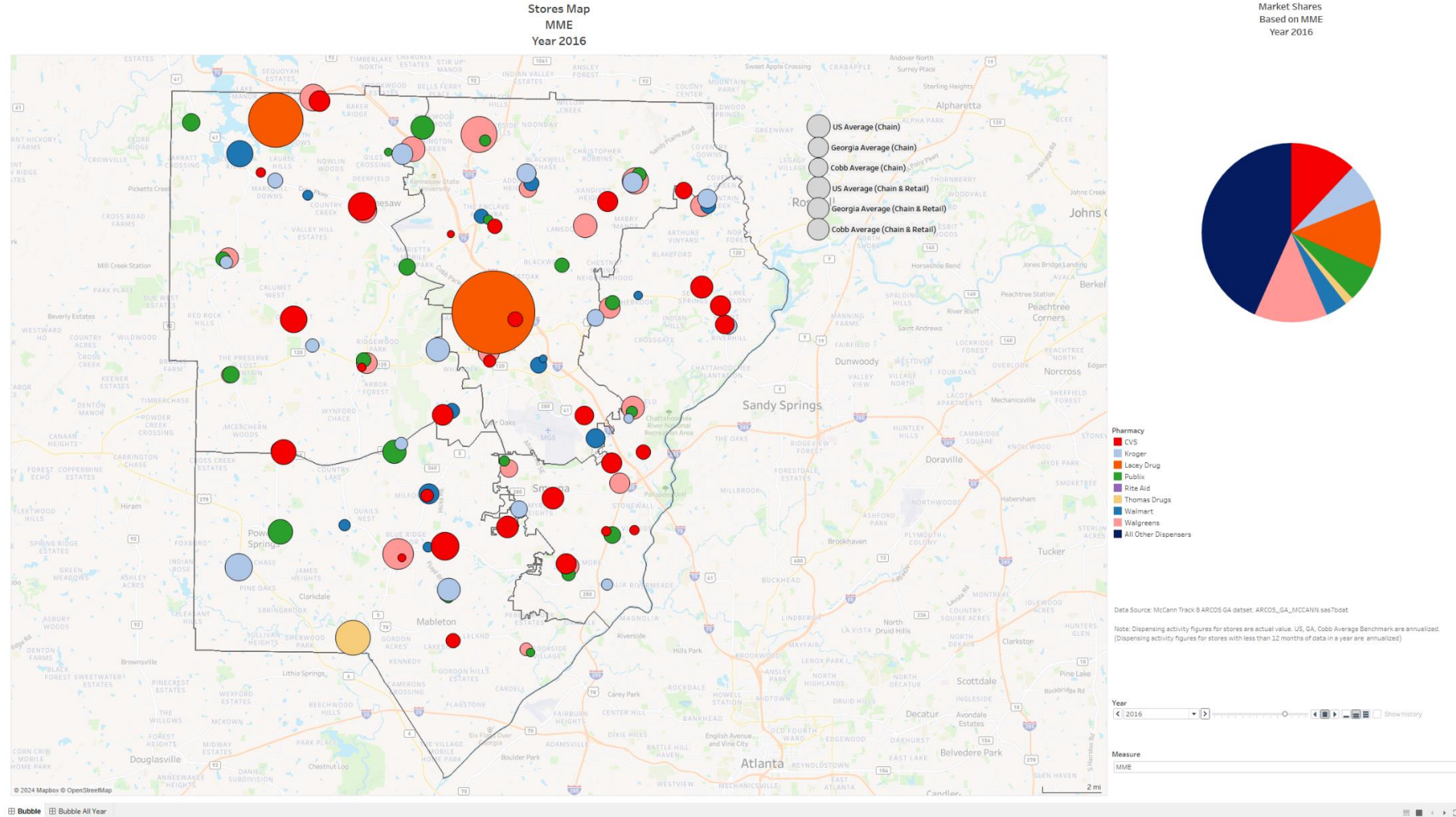




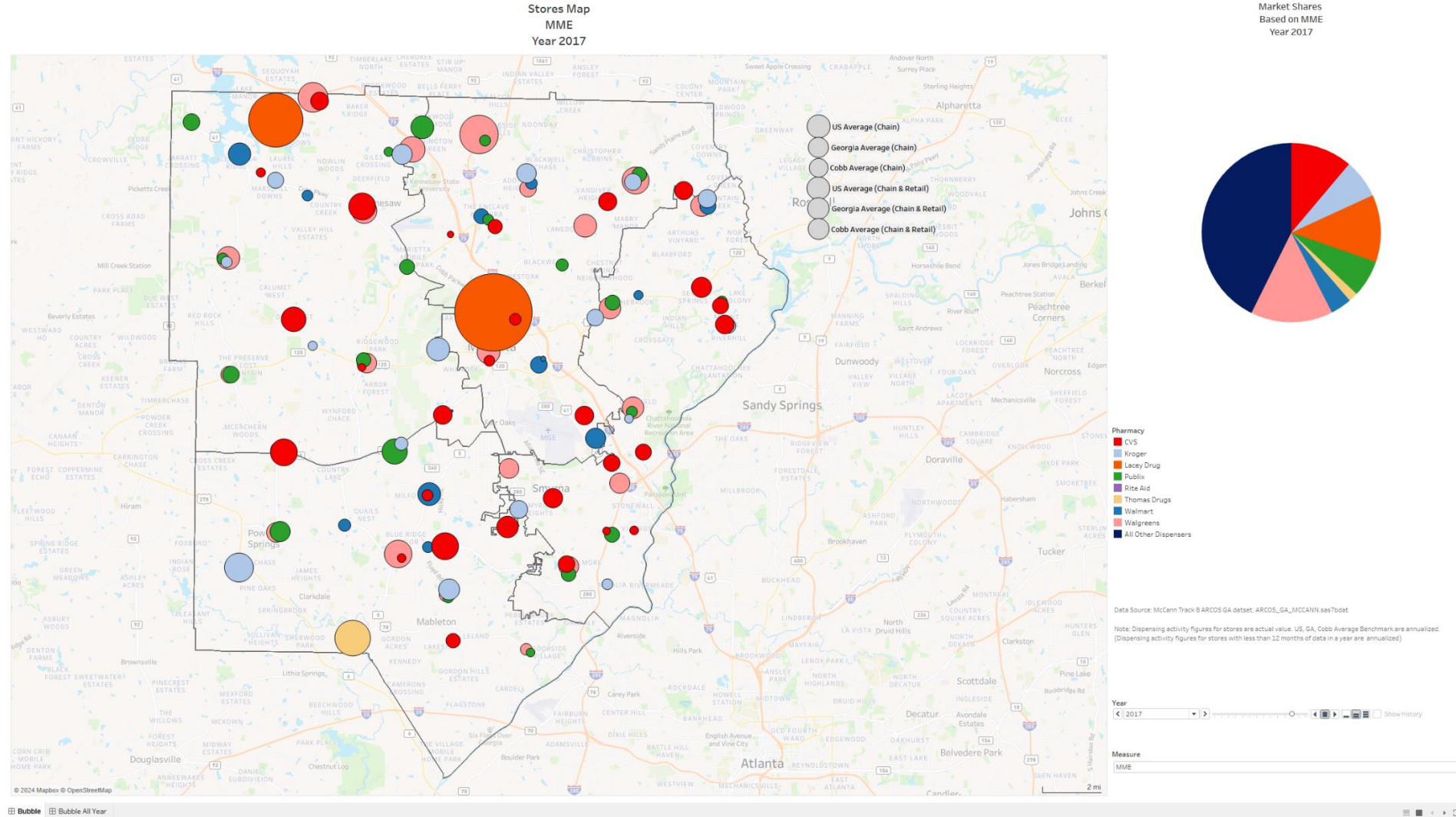


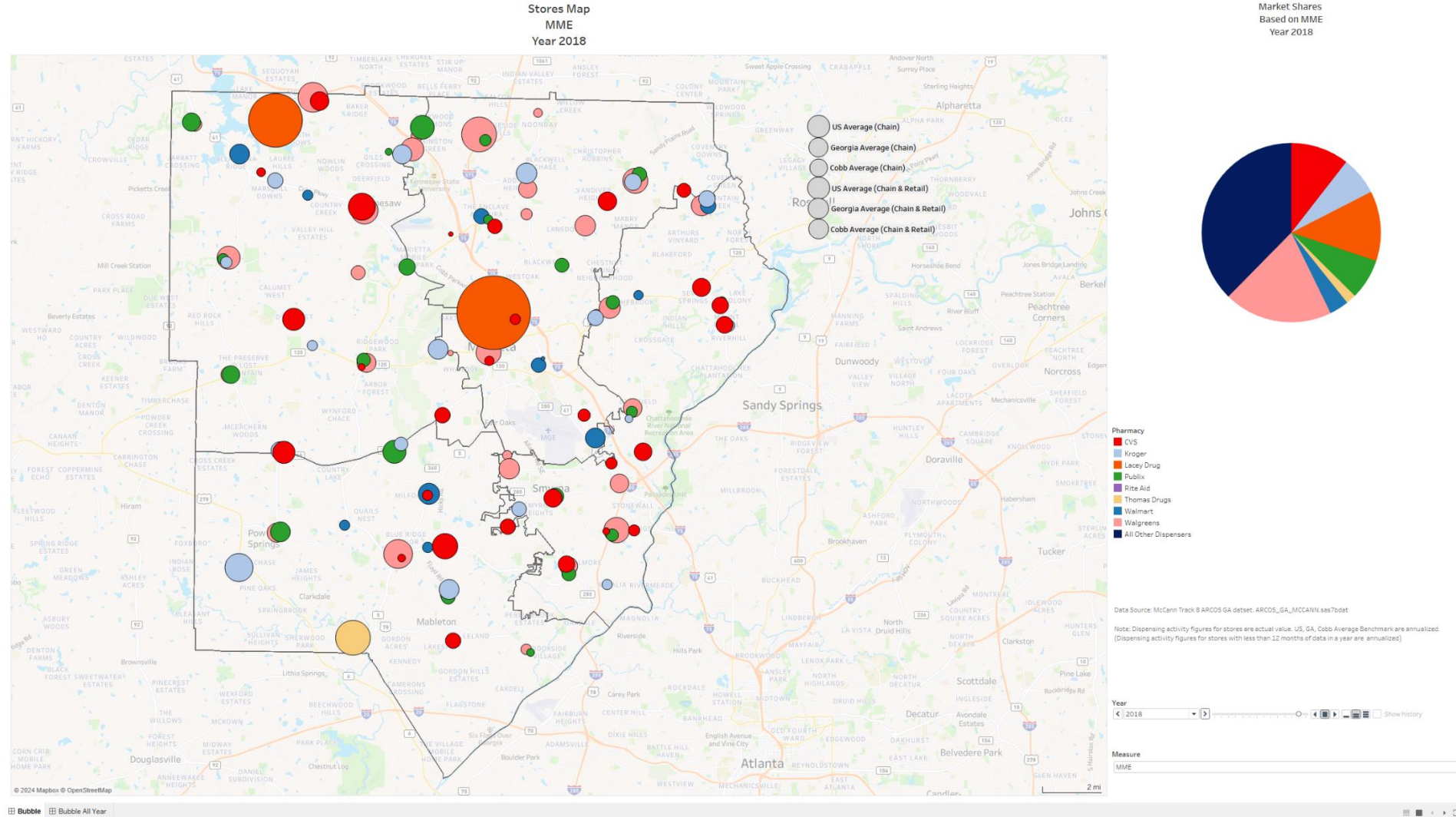




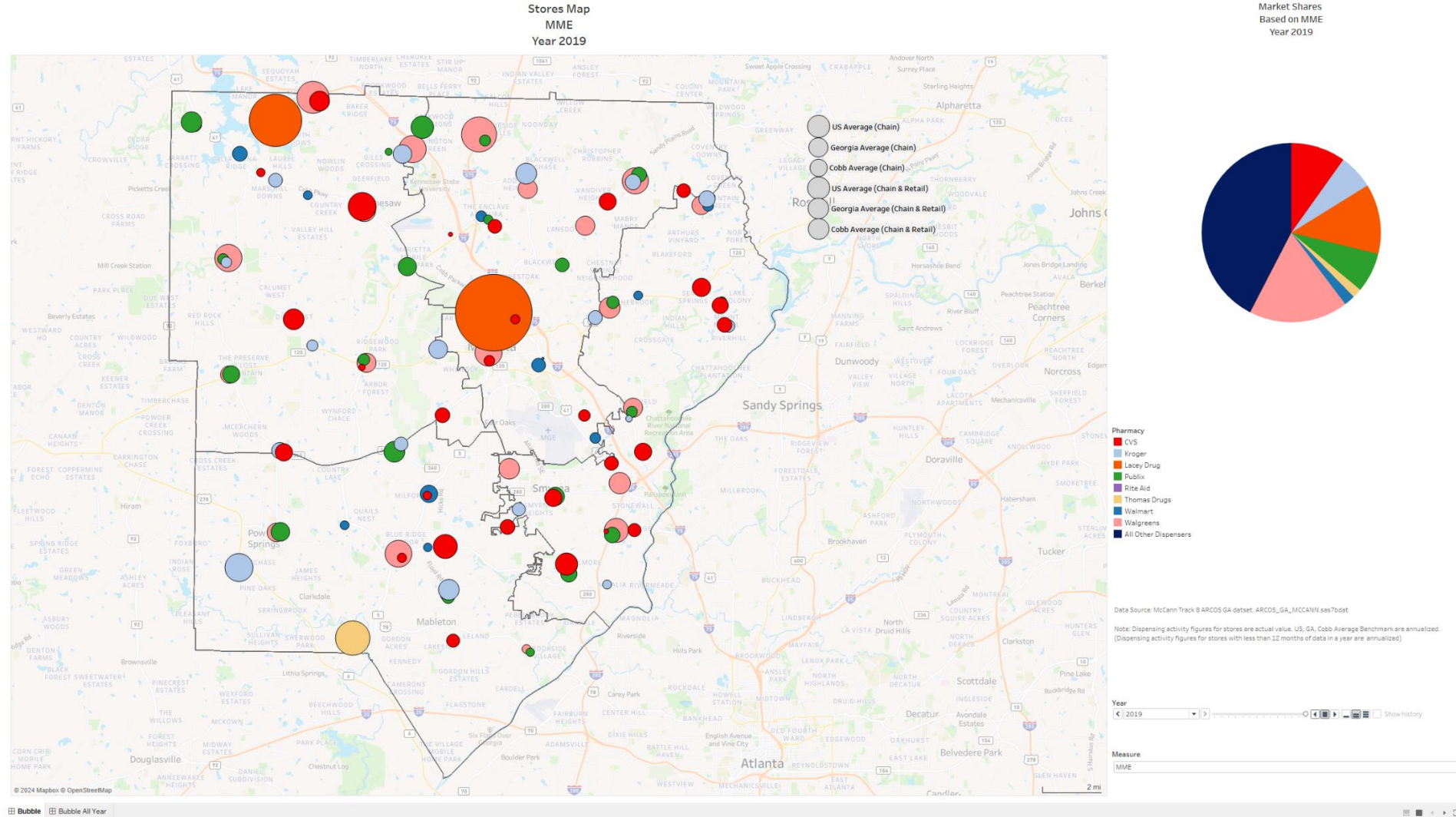












## Exhibit 2A

Publix, Cobb County v. Purdue Pharma, et al

Comparison of Opioids Dispensed by Publix and All Other Chain &amp; Retail Pharmacies in Cobb County, by Year

Dosage Units, Select Opiates

Average of Cobb County Publix Stores

Year	HYDROCODONE				OXYCODONE										HYDRO-MORPHINE	FENTANYL	BUPREN-ORPHINE	Other Opiates	Grand Total
	5mg	7.5mg	10mg	Total	5mg	7.5mg	10mg	15mg	20mg	30mg	40mg	60mg	80mg	Total					
2006	12,586	16,963	11,317	41,007	10,958	3,854	8,879	867	2,167	446	1,554	-	583	29,454	472	897	449	13,063	85,341
2007	14,204	16,829	13,996	45,129	10,646	3,817	9,679	1,038	2,229	583	1,938	-	663	30,754	585	928	434	12,733	90,563
2008	16,049	18,333	16,854	51,428	11,000	4,438	9,804	1,938	1,813	883	1,529	154	496	32,196	809	730	678	13,707	99,547
2009	18,017	17,792	18,272	54,263	11,246	4,700	10,833	2,475	1,471	1,838	1,700	225	504	35,108	979	639	1,013	12,681	104,683
2010	17,354	16,017	14,613	48,121	12,013	4,738	10,000	2,675	1,303	2,996	904	146	429	35,323	992	706	1,171	10,327	96,640
2011	21,545	18,075	16,226	56,009	11,196	4,338	10,013	3,163	1,031	3,658	588	196	250	34,506	996	623	1,203	11,415	104,752
2012	23,850	20,038	19,650	63,745	11,108	4,588	13,042	3,592	1,025	3,804	683	225	300	38,417	1,029	536	1,339	13,018	118,084
2013	21,124	18,733	17,774	57,807	10,629	4,363	13,804	2,783	958	3,142	692	113	175	36,671	1,546	503	1,340	12,601	110,467
2014	19,855	14,562	18,670	53,107	10,554	4,800	15,575	2,608	963	2,504	654	138	67	37,904	1,409	389	1,368	11,564	105,741
2015	16,830	12,546	16,723	46,129	10,625	4,450	17,238	3,446	1,213	2,938	613	175	46	40,758	1,254	412	1,510	12,848	102,912
2016	14,998	11,132	14,438	40,593	10,828	4,356	18,320	3,432	1,072	3,276	612	136	64	42,104	1,308	447	1,216	12,550	98,218
2017	13,151	9,788	13,044	36,055	10,192	3,804	18,042	3,454	992	3,504	404	104	38	40,692	1,183	428	1,255	11,292	90,905
2018	10,768	8,304	12,422	31,630	8,275	3,204	17,938	3,925	1,013	4,073	213	58	17	39,014	1,333	370	1,673	9,974	83,994
2019	10,744	8,238	11,965	31,047	9,008	3,208	17,788	3,272	904	3,371	154	46	4	38,109	1,488	281	2,511	9,502	82,938
Total	231,075	207,348	215,963	656,070	148,278	58,656	190,953	38,666	18,151	37,015	12,237	1,715	3,635	511,011	15,383	7,888	17,158	167,274	1,374,784
% of Total	16.8%	15.1%	15.7%	47.7%	10.8%	4.3%	13.9%	2.8%	1.3%	2.7%	0.9%	0.1%	0.3%	37.2%	1.1%	0.6%	1.2%	12.2%	100.0%
% of Opiate Category	35.2%	31.6%	32.9%	100.0%	29.0%	11.5%	37.4%	7.6%	3.6%	7.2%	2.4%	0.3%	0.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Cobb County Average, Chain and Retail Pharmacies (exc. Publix)

Year	HYDROCODONE				OXYCODONE										HYDRO-MORPHINE	FENTANYL	BUPREN-ORPHINE	Other Opiates	Grand Total
	5mg	7.5mg	10mg	Total	5mg	7.5mg	10mg	15mg	20mg	30mg	40mg	60mg	80mg	Total					
2006	18,060	22,667	19,326	60,606	15,912	4,552	10,294	1,760	2,911	727	2,374	-	1,246	40,277	1,613	2,012	631	21,416	126,555
2007	17,655	21,105	19,193	58,392	14,306	4,461	11,074	2,203	2,711	1,324	2,217	-	1,121	40,026	1,455	1,583	866	19,010	121,331
2008	20,753	22,435	23,005	66,776	15,614	5,061	13,279	3,168	2,397	3,477	2,200	199	1,343	47,119	1,939	1,571	1,481	21,424	140,310
2009	23,518	23,073	26,184	73,468	16,913	5,421	15,182	4,395	2,236	5,919	1,991	396	1,466	54,140	2,157	1,517	1,943	21,255	154,481
2010	23,014	20,793	26,163	70,547	15,773	5,265	15,724	5,438	1,888	10,749	1,558	420	1,235	58,225	2,720	1,202	2,416	19,454	154,564
2011	24,611	20,873	28,164	74,224	15,626	5,166	17,468	7,773	1,519	16,705	953	401	592	66,370	2,882	1,106	2,959	20,804	168,346
2012	23,989	19,658	28,726	72,873	14,054	4,752	19,262	6,633	1,423	10,621	973	393	553	58,774	3,137	977	3,217	19,793	158,772
2013	23,623	18,433	27,841	70,282	13,036	4,683	18,796	5,691	1,428	7,861	896	356	516	53,365	3,018	992	3,509	17,850	149,015
2014	22,249	16,221	26,457	64,981	13,200	4,637	19,764	5,531	1,577	7,840	839	385	484	54,355	2,813	989	3,608	17,551	144,297
2015	18,920	13,568	22,984	55,580	14,065	4,880	22,845	6,313	1,733	8,403	790	394	480	59,968	3,019	1,005	4,069	18,764	142,406
2016	18,515	12,824	22,715	54,182	14,277	5,030	25,938	6,824	1,860	8,292	724	346	392	63,731	2,811	1,038	4,538	19,204	145,504
2017	17,299	11,420	21,080	49,961	13,702	4,775	26,769	6,694	1,707	7,496	519	239	302	62,332	2,547	986	4,918	18,354	139,098
2018	14,149	9,561	17,917	41,765	11,364	4,303	24,607	6,273	1,645	6,288	447	199	250	55,752	1,967	785	5,175	15,741	121,186
2019	14,617	8,644	18,515	41,878	12,766	4,706	28,659	7,451	1,939	7,567	302	189	201	64,255	2,164	705	6,093	15,926	131,020

Variance to Cobb County Average, Chain and Retail Pharmacies (exc. Publix)

Year	HYDROCODONE				OXYCODONE										HYDRO-MORPHINE	FENTANYL	BUPREN-ORPHINE	Other Opiates	Grand Total
	5mg	7.5mg	10mg	Total	5mg	7.5mg	10mg	15mg	20mg	30mg	40mg	60mg	80mg	Total					
2006	-30%	-25%	-41%	-32%	-31%	-15%	-14%	-51%	-26%	-39%	-35%	n/a	-53%	-27%	-71%	-55%	-29%	-39%	-33%
2007	-20%	-20%	-27%	-23%	-26%	-14%	-13%	-53%	-18%	-56%	-13%	n/a	-41%	-23%	-60%	-41%	-50%	-33%	-25%
2008	-23%	-18%	-27%	-23%	-30%	-12%	-26%	-39%	-24%	-75%	-30%	-22%	-63%	-32%	-58%	-54%	-54%	-36%	-29%
2009	-23%	-23%	-30%	-26%	-34%	-13%	-29%	-44%	-34%	-69%	-15%	-43%	-66%	-35%	-55%	-58%	-48%	-40%	-32%
2010	-25%	-23%	-44%	-32%	-24%	-10%	-36%	-51%	-31%	-72%	-42%	-65%	-65%	-39%	-64%	-41%	-52%	-47%	-37%
2011	-12%	-13%	-42%	-25%	-28%	-16%	-43%	-59%	-32%	-78%	-38%	-51%	-58%	-48%	-65%	-44%	-59%	-45%	-38%
2012	-1%	2%	-32%	-13%	-21%	-3%	-32%	-46%	-28%	-64%	-30%	-43%	-46%	-35%	-67%	-45%	-58%	-34%	-26%
2013	-11%	2%	-36%	-18%	-18%	-7%	-27%	-51%	-33%	-60%	-23%	-68%	-66%	-31%	-49%	-49%	-62%	-29%	-26%
2014	-11%	-10%	-29%	-18%	-20%	4%	-21%	-53%	-39%	-68%	-22%	-64%	-86%	-30%	-50%	-61%	-62%	-34%	-27%
2015	-11%	-8%	-27%	-17%	-24%	-9%	-25%	-45%	-30%	-65%	-22%	-56%	-90%	-32%	-58%	-59%	-63%	-32%	-28%
2016	-19%	-13%	-36%	-25%	-24%	-13%	-29%	-50%	-42%	-60%	-15%	-61%	-84%	-34%	-53%	-57%	-73%	-35%	-32%
2017	-24%	-14%	-38%	-28%	-26%	-20%	-33%	-48%	-42%	-53%	-22%	-56%	-88%	-35%	-54%	-57%	-74%	-38%	-35%
2018	-24%	-13%	-31%	-24%	-27%	-26%	-27%	-37%	-38%	-35%	-52%	-71%	-93%	-30%	-32%	-53%	-68%	-37%	-31%
2019	-26%	-5%	-35%	-26%	-29%	-32%	-38%	-56%	-53%	-55%	-49%	-76%	-98%	-41%	-31%	-60%	-59%	-40%	-37%

Source: ARCOS data, processed by Dr. McCann.

Notes: Dosage units are annualized for stores that exist for only part of a given year.



## Exhibit 2B

Publix, Cobb County v. Purdue Pharma, et al

Comparison of Opioids Dispensed by Publix and All Other Chain &amp; Retail Pharmacies in US, by Year

Dosage Units, Select Opiates

Average of Cobb County Publix Stores

Year	HYDROCODONE				OXYCODONE										HYDRO-MORPHINE	FENTANYL	BUPREN-ORPHINE	Other Opiates	Grand Total
	5mg	7.5mg	10mg	Total	5mg	7.5mg	10mg	15mg	20mg	30mg	40mg	60mg	80mg	Total					
2006	12,586	16,963	11,317	41,007	10,958	3,854	8,879	867	2,167	446	1,554	-	583	29,454	472	897	449	13,063	85,341
2007	14,204	16,829	13,996	45,129	10,646	3,817	9,679	1,038	2,229	583	1,938	-	663	30,754	585	928	434	12,733	90,563
2008	16,049	18,333	16,854	51,428	11,000	4,438	9,804	1,938	1,813	883	1,529	154	496	32,196	809	730	678	13,707	99,547
2009	18,017	17,792	18,272	54,263	11,246	4,700	10,833	2,475	1,471	1,838	1,700	225	504	35,108	979	639	1,013	12,681	104,683
2010	17,354	16,017	14,613	48,121	12,013	4,738	10,000	2,675	1,303	2,996	904	146	429	35,323	992	706	1,171	10,327	96,640
2011	21,545	18,075	16,226	56,009	11,196	4,338	10,013	3,163	1,031	3,658	588	196	250	34,506	996	623	1,203	11,415	104,752
2012	23,850	20,038	19,650	63,745	11,108	4,588	13,042	3,592	1,025	3,804	683	225	300	38,417	1,029	536	1,339	13,018	118,084
2013	21,124	18,733	17,774	57,807	10,629	4,363	13,804	2,783	958	3,142	692	113	175	36,671	1,546	503	1,340	12,601	110,467
2014	19,855	14,562	18,670	53,107	10,554	4,800	15,575	2,608	963	2,504	654	138	67	37,904	1,409	389	1,368	11,564	105,741
2015	16,830	12,546	16,723	46,129	10,625	4,450	17,238	3,446	1,213	2,938	613	175	46	40,758	1,254	412	1,510	12,848	102,912
2016	14,998	11,132	14,438	40,593	10,828	4,356	18,320	3,432	1,072	3,276	612	136	64	42,104	1,308	447	1,216	12,550	98,218
2017	13,151	9,788	13,044	36,055	10,192	3,804	18,042	3,454	992	3,504	404	104	38	40,692	1,183	428	1,255	11,292	90,905
2018	10,768	8,304	12,422	31,630	8,275	3,204	17,938	3,925	1,013	4,073	213	58	17	39,014	1,333	370	1,673	9,974	83,994
2019	10,744	8,238	11,965	31,047	9,008	3,208	17,788	3,272	904	3,371	154	46	4	38,109	1,488	281	2,511	9,502	82,938
Total	231,075	207,348	215,963	656,070	148,278	58,656	190,953	38,666	18,151	37,015	12,237	1,715	3,635	511,011	15,383	7,888	17,158	167,274	1,374,784
% of Total	16.8%	15.1%	15.7%	47.7%	10.8%	4.3%	13.9%	2.8%	1.3%	2.7%	0.9%	0.1%	0.3%	37.2%	1.1%	0.6%	1.2%	12.2%	100.0%
% of Opiate Category	35.2%	31.6%	32.9%	100.0%	29.0%	11.5%	37.4%	7.6%	3.6%	7.2%	2.4%	0.3%	0.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

## US Average, Chain and Retail Pharmacies (exc. Publix)

Year	HYDROCODONE				OXYCODONE										HYDRO-MORPHINE	FENTANYL	BUPREN-ORPHINE	Other Opiates	Grand Total
	5mg	7.5mg	10mg	Total	5mg	7.5mg	10mg	15mg	20mg	30mg	40mg	60mg	80mg	Total					
2006	34,625	28,717	31,060	94,598	21,390	2,605	7,895	1,544	2,853	1,654	2,753	-	2,013	43,694	2,491	1,416	666	26,197	169,062
2007	37,033	30,423	35,284	102,938	22,132	2,989	9,608	2,176	2,902	2,687	2,834	-	2,144	48,999	2,811	1,477	1,198	26,866	184,290
2008	38,970	31,830	37,883	108,877	23,747	3,287	11,332	3,039	2,553	4,519	2,599	188	2,233	54,273	3,205	1,451	1,865	29,710	199,381
2009	39,523	32,163	42,096	113,975	24,833	3,700	13,483	4,041	2,264	6,598	2,323	417	2,310	60,172	3,711	1,356	2,532	30,247	211,991
2010	39,751	31,767	46,118	117,836	25,618	3,863	15,168	5,372	2,074	10,149	2,028	535	2,128	67,105	3,898	1,282	3,043	30,523	223,687
2011	42,423	32,207	50,168	125,064	26,075	4,064	17,321	6,324	1,837	12,174	1,488	491	1,348	71,278	4,432	1,271	3,481	32,131	237,657
2012	40,075	30,551	51,273	122,111	24,835	4,027	18,943	6,605	1,973	10,572	1,292	506	1,177	70,053	4,925	1,201	4,003	30,547	232,840
2013	37,664	27,554	51,076	116,458	22,613	3,819	19,467	6,400	2,178	9,118	1,124	497	1,006	66,314	4,837	1,124	4,477	28,068	221,279
2014	34,512	23,987	50,106	108,656	22,807	4,002	21,367	6,585	2,509	8,409	997	474	858	68,082	4,739	1,088	4,907	27,525	214,997
2015	28,598	19,600	44,900	93,230	22,981	4,244	23,272	6,716	2,792	8,032	902	443	732	70,175	4,608	1,037	5,341	28,673	203,063
2016	25,438	17,622	41,708	84,933	21,278	4,207	23,644	6,448	2,888	7,193	770	378	589	67,455	4,199	937	5,730	26,184	189,439
2017	22,370	15,639	38,199	76,386	18,955	3,991	22,864	6,025	2,809	6,154	599	299	422	62,269	3,676	792	6,512	23,275	172,910
2018	18,427	13,053	32,962	64,614	16,079	3,703	20,874	5,262	2,477	4,839	437	216	283	54,533	3,055	629	7,501	19,501	149,834
2019	16,519	11,674	29,684	58,011	14,634	3,532	19,833	4,714	2,220	3,921	301	152	184	49,974	2,726	505	8,889	16,942	137,045

## Variance to US Average, Chain and Retail Pharmacies (exc. Publix)

Year	HYDROCODONE				OXYCODONE										HYDRO-MORPHINE	FENTANYL	BUPREN-ORPHINE	Other Opiates	Grand Total
	5mg	7.5mg	10mg	Total	5mg	7.5mg	10mg	15mg	20mg	30mg	40mg	60mg	80mg	Total					
2006	-64%	-41%	-64%	-57%	-49%	48%	12%	-44%	-24%	-73%	-44%	n/a	-71%	-33%	-81%	-37%	-33%	-50%	-50%
2007	-62%	-45%	-60%	-56%	-52%	28%	1%	-52%	-23%	-78%	-32%	n/a	-69%	-37%	-79%	-37%	-64%	-53%	-51%
2008	-59%	-42%	-56%	-53%	-54%	35%	-13%	-36%	-29%	-80%	-41%	-18%	-78%	-41%	-75%	-50%	-64%	-54%	-50%
2009	-54%	-45%	-57%	-52%	-55%	27%	-20%	-39%	-35%	-72%	-27%	-46%	-78%	-42%	-74%	-53%	-60%	-58%	-51%
2010	-56%	-50%	-68%	-59%	-53%	23%	-34%	-50%	-37%	-70%	-55%	-73%	-80%	-47%	-75%	-45%	-62%	-66%	-57%
2011	-49%	-44%	-68%	-55%	-57%	7%	-42%	-50%	-44%	-70%	-61%	-60%	-81%	-52%	-78%	-51%	-65%	-64%	-56%
2012	-40%	-34%	-62%	-48%	-55%	14%	-31%	-46%	-48%	-64%	-47%	-56%	-75%	-45%	-79%	-55%	-67%	-57%	-49%
2013	-44%	-32%	-65%	-50%	-53%	14%	-29%	-57%	-56%	-66%	-38%	-77%	-83%	-45%	-68%	-55%	-70%	-55%	-50%
2014	-42%	-39%	-63%	-51%	-54%	20%	-27%	-60%	-62%	-70%	-34%	-71%	-92%	-44%	-70%	-64%	-72%	-58%	-51%
2015	-41%	-36%	-63%	-51%	-54%	5%	-26%	-49%	-57%	-63%	-32%	-60%	-94%	-42%	-73%	-60%	-72%	-55%	-49%
2016	-41%	-37%	-65%	-52%	-49%	4%	-23%	-47%	-63%	-54%	-21%	-64%	-89%	-38%	-69%	-52%	-79%	-52%	-48%
2017	-41%	-37%	-66%	-53%	-46%	-5%	-21%	-43%	-65%	-43%	-33%	-65%	-91%	-35%	-68%	-46%	-81%	-51%	-47%
2018	-42%	-36%	-62%	-51%	-49%	-13%	-14%	-25%	-59%	-16%	-51%	-73%	-94%	-28%	-56%	-41%	-78%	-49%	-44%
2019	-35%	-29%	-60%	-46%	-38%	-9%	-10%	-31%	-59%	-14%	-49%	-70%	-98%	-24%	-45%	-44%	-72%	-44%	-39%

Source: ARCOS data, processed by Dr. McCann.

Notes: Dosage units are annualized for stores that exist for only part of a given year.

**Exhibit 3A****Publix, Cobb County v. Purdue Pharma, et al****Comparison of Opioids Dispensed by Publix and All Other Chain & Retail Pharmacies, by Year****Dosage Units, All 14 Opiates****All Publix Stores in Cobb County**

	Publix, Cobb County		All Other Chain & Retail Pharmacies, Cobb County			All Other Chain & Retail Pharmacies, Georgia			All Other Chain & Retail Pharmacies, U.S.		
Year	Total Number of Stores	Per Store Average Dispensed	Total Number of Stores	Per Store Average Dispensed	Publix Variance to Average	Total Number of Stores	Per Store Average Dispensed	Publix Variance to Average	Total Number of Stores	Per Store Average Dispensed	Publix Variance to Average
2006	24	85,341	136	126,555	-32.6%	1,949	145,544	-41.4%	63,734	169,062	-49.5%
2007	24	90,563	167	121,331	-25.4%	2,202	155,007	-41.6%	65,761	184,290	-50.9%
2008	24	99,547	141	140,310	-29.1%	2,061	169,101	-41.1%	64,752	199,381	-50.1%
2009	24	104,683	138	154,481	-32.2%	2,054	182,032	-42.5%	64,664	211,991	-50.6%
2010	24	96,640	143	154,564	-37.5%	2,078	192,217	-49.7%	65,063	223,687	-56.8%
2011	24	104,752	147	168,346	-37.8%	2,122	212,075	-50.6%	64,999	237,657	-55.9%
2012	24	118,084	150	158,772	-25.6%	2,150	208,937	-43.5%	65,779	232,840	-49.3%
2013	24	110,467	152	149,015	-25.9%	2,148	199,509	-44.6%	66,870	221,279	-50.1%
2014	24	105,741	152	144,297	-26.7%	2,186	193,974	-45.5%	66,998	214,997	-50.8%
2015	24	102,912	154	142,406	-27.7%	2,188	187,325	-45.1%	67,666	203,063	-49.3%
2016	25	98,218	145	145,504	-32.5%	2,177	184,434	-46.7%	68,533	189,439	-48.2%
2017	24	90,905	141	139,098	-34.6%	2,148	176,405	-48.5%	67,972	172,910	-47.4%
2018	24	83,994	148	121,186	-30.7%	2,311	153,729	-45.4%	68,418	149,834	-43.9%
2019	24	82,938	129	131,020	-36.7%	2,048	149,895	-44.7%	65,844	137,045	-39.5%
<b>2006 - 2019</b>	<b>24</b>	<b>98,199</b>	<b>146</b>	<b>142,634</b>	<b>-31.2%</b>	<b>2,130</b>	<b>179,299</b>	<b>-45.2%</b>	<b>66,218</b>	<b>196,248</b>	<b>-50.0%</b>

Source: ARCOS data, processed by Dr. McCann.

Notes: The "Per Store Average" is annualized for stores that exist for only part of a given year.

ARCOS provides data on the shipments of 14 opiates from manufacturers to distributors, including Chain Pharmacies. This exhibit uses the term "dispensed," which assumes that all opioid shipments to pharmacies were dispensed in the same year.

**Exhibit 3B****Publix, Cobb County v. Purdue Pharma, et al****Comparison of Opioids Dispensed by Publix and All Other Chain & Retail Pharmacies, by Year****MME, All 14 Opiates****All Publix Stores in Cobb County**

	Publix, Cobb County		All Other Chain & Retail Pharmacies, Cobb County			All Other Chain & Retail Pharmacies, Georgia			All Other Chain & Retail Pharmacies, U.S.		
Year	Total Number of Stores	Per Store Average Dispensed	Total Number of Stores	Per Store Average Dispensed	Publix Variance to Average	Total Number of Stores	Per Store Average Dispensed	Publix Variance to Average	Total Number of Stores	Per Store Average Dispensed	Publix Variance to Average
2006	24	1,457,530	136	2,469,057	-41.0%	1,949	2,442,660	-40.3%	63,734	2,868,083	-49.2%
2007	24	1,501,085	167	2,314,418	-35.1%	2,202	2,587,222	-42.0%	65,761	3,208,712	-53.2%
2008	24	1,565,313	141	2,732,621	-42.7%	2,061	2,719,971	-42.5%	64,752	3,422,509	-54.3%
2009	24	1,617,559	138	3,056,546	-47.1%	2,054	2,982,960	-45.8%	64,664	3,779,414	-57.2%
2010	24	1,628,969	143	3,242,097	-49.8%	2,078	3,325,883	-51.0%	65,063	4,150,381	-60.8%
2011	24	1,651,603	147	3,562,536	-53.6%	2,122	3,679,392	-55.1%	64,999	4,346,378	-62.0%
2012	24	1,811,189	150	3,314,801	-45.4%	2,150	3,660,265	-50.5%	65,779	4,352,547	-58.4%
2013	24	1,704,819	152	3,128,662	-45.5%	2,148	3,510,346	-51.4%	66,870	4,238,884	-59.8%
2014	24	1,604,439	152	3,103,711	-48.3%	2,186	3,468,762	-53.7%	66,998	4,250,378	-62.3%
2015	24	1,652,155	154	3,286,068	-49.7%	2,188	3,509,572	-52.9%	67,666	4,203,790	-60.7%
2016	25	1,583,999	145	3,430,094	-53.8%	2,177	3,505,987	-54.8%	68,533	4,039,106	-60.8%
2017	24	1,538,002	141	3,294,735	-53.3%	2,148	3,422,256	-55.1%	67,972	3,861,219	-60.2%
2018	24	1,523,668	148	3,019,848	-49.5%	2,311	3,097,532	-50.8%	68,418	3,647,501	-58.2%
2019	24	1,532,978	129	3,266,062	-53.1%	2,048	3,121,968	-50.9%	65,844	3,653,836	-58.0%
<b>2006 - 2019</b>	<b>24</b>	<b>1,598,093</b>	<b>146</b>	<b>3,087,233</b>	<b>-48.2%</b>	<b>2,130</b>	<b>3,216,770</b>	<b>-50.3%</b>	<b>66,218</b>	<b>3,858,767</b>	<b>-58.6%</b>

Source: ARCOS data, processed by Dr. McCann.

Notes: The "Per Store Average" is annualized for stores that exist for only part of a given year.

ARCOS provides data on the shipments of 14 opiates from manufacturers to distributors, including Chain Pharmacies. This exhibit uses the term "dispensed," which assumes that all opioid shipments to pharmacies were dispensed in the same year.

Exhibit 4A  
 Publix, Cobb County v. Purdue Pharma, et al  
 Comparison of Opioids Dispensed by Publix and All Other Chain and Retail Pharmacies, by Year  
 Dosage Units, All 14 Opiates  
 All Publix Stores in Cobb County

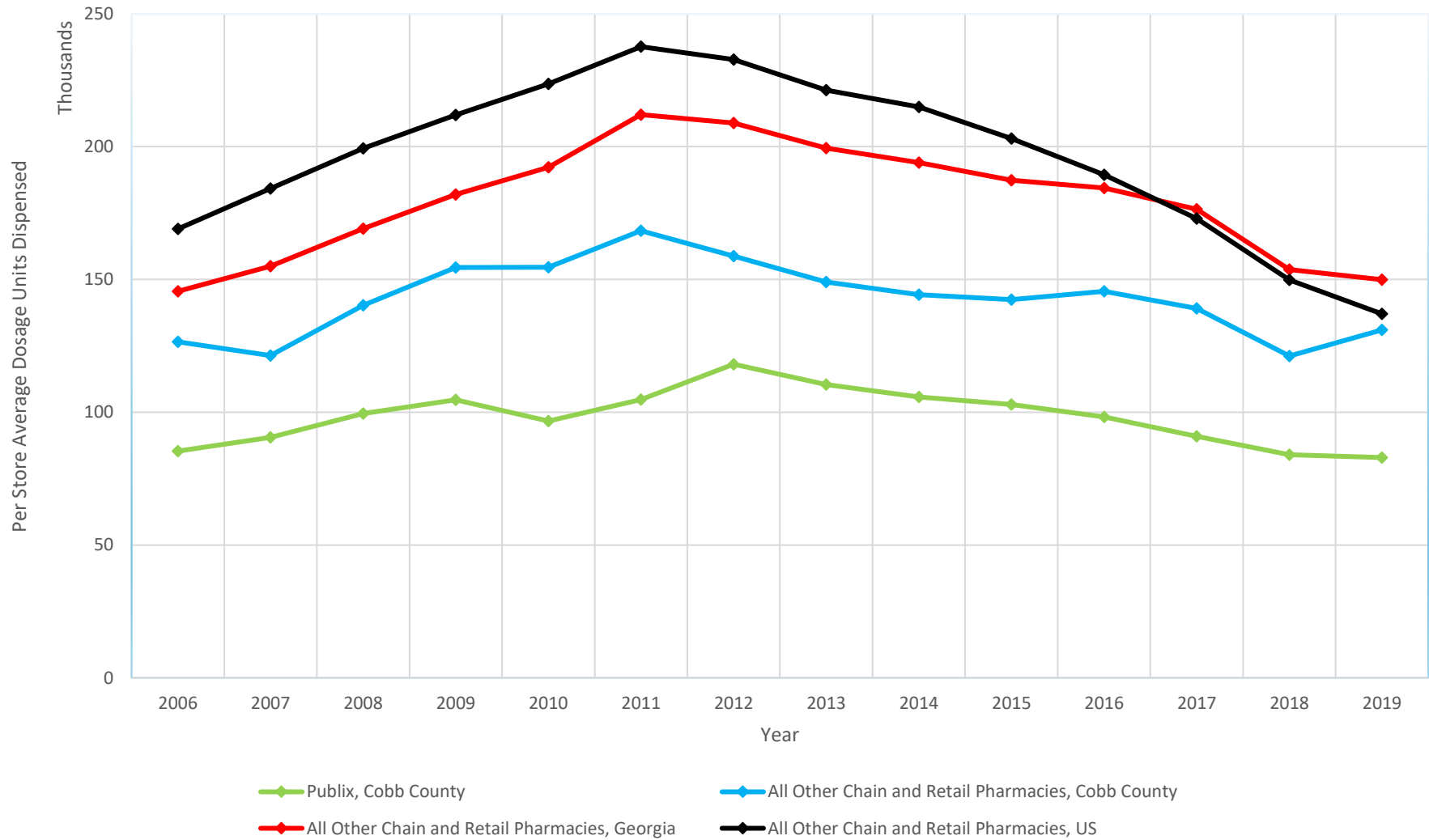




Exhibit 4B  
 Publix, Cobb County v. Purdue Pharma, et al  
 Comparison of Opioids Dispensed by Publix and All Other Chain and Retail Pharmacies, by Year  
 Dosage Units, Hydrocodone  
 All Publix Stores in Cobb County

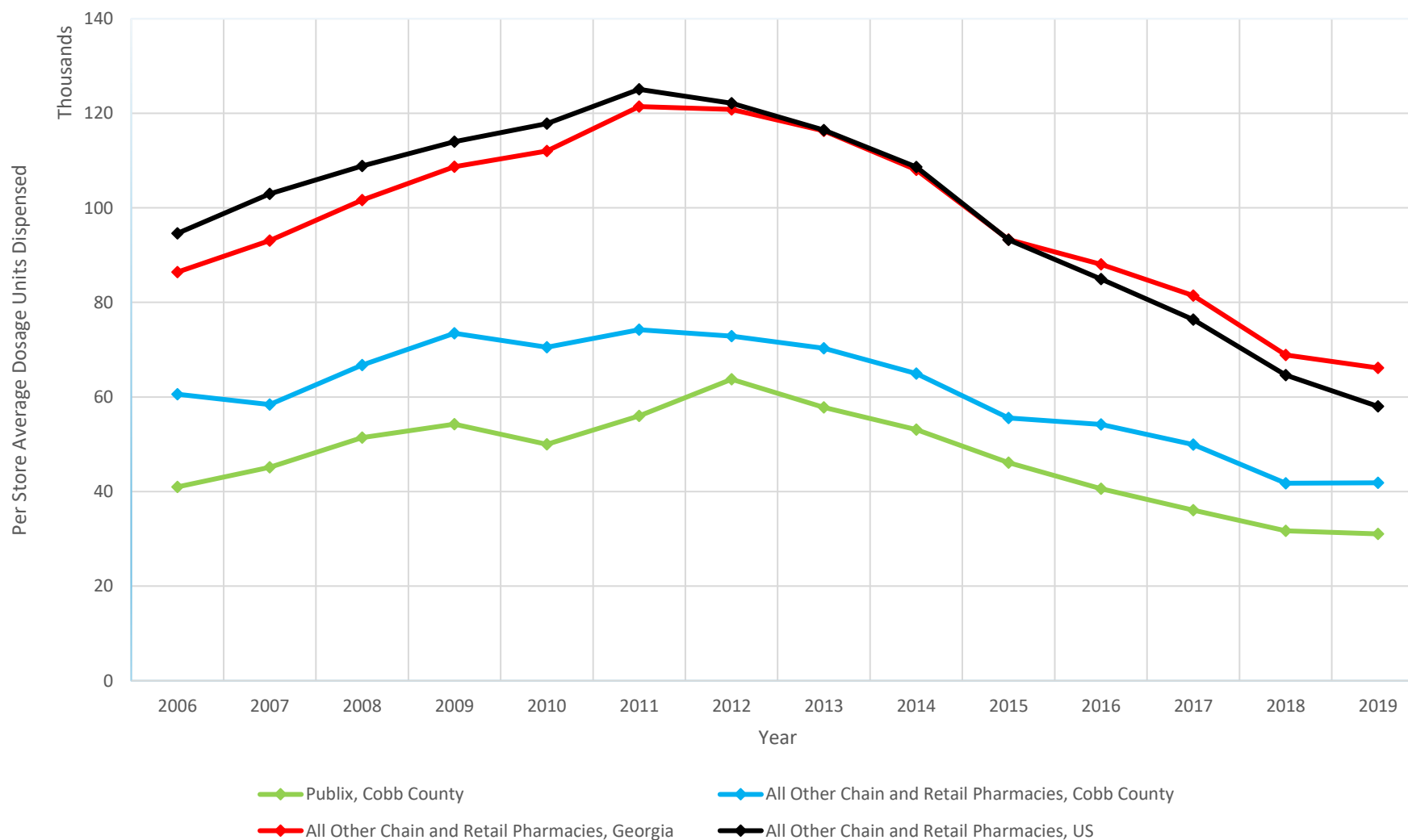


Exhibit 4C  
Publix, Cobb County v. Purdue Pharma, et al  
Comparison of Opioids Dispensed by Publix and All Other Chain and Retail Pharmacies, by Year  
Dosage Units, Oxycodone  
All Publix Stores in Cobb County

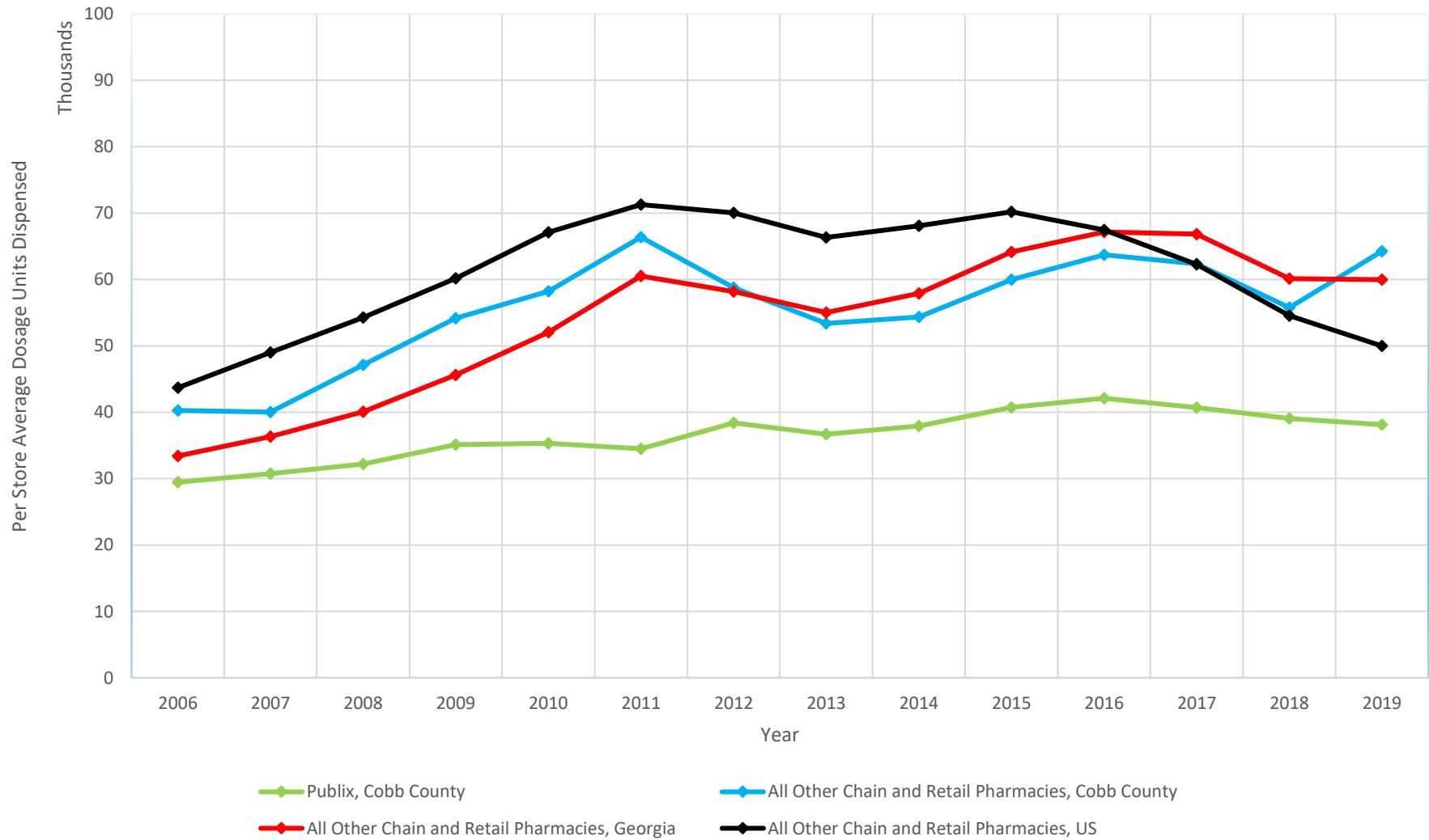


Exhibit 4D  
 Publix, Cobb County v. Purdue Pharma, et al  
 Comparison of Opioids Dispensed by Publix and All Other Chain and Retail Pharmacies, by Year  
 MME, All 14 Opiates  
 All Publix Stores in Cobb County

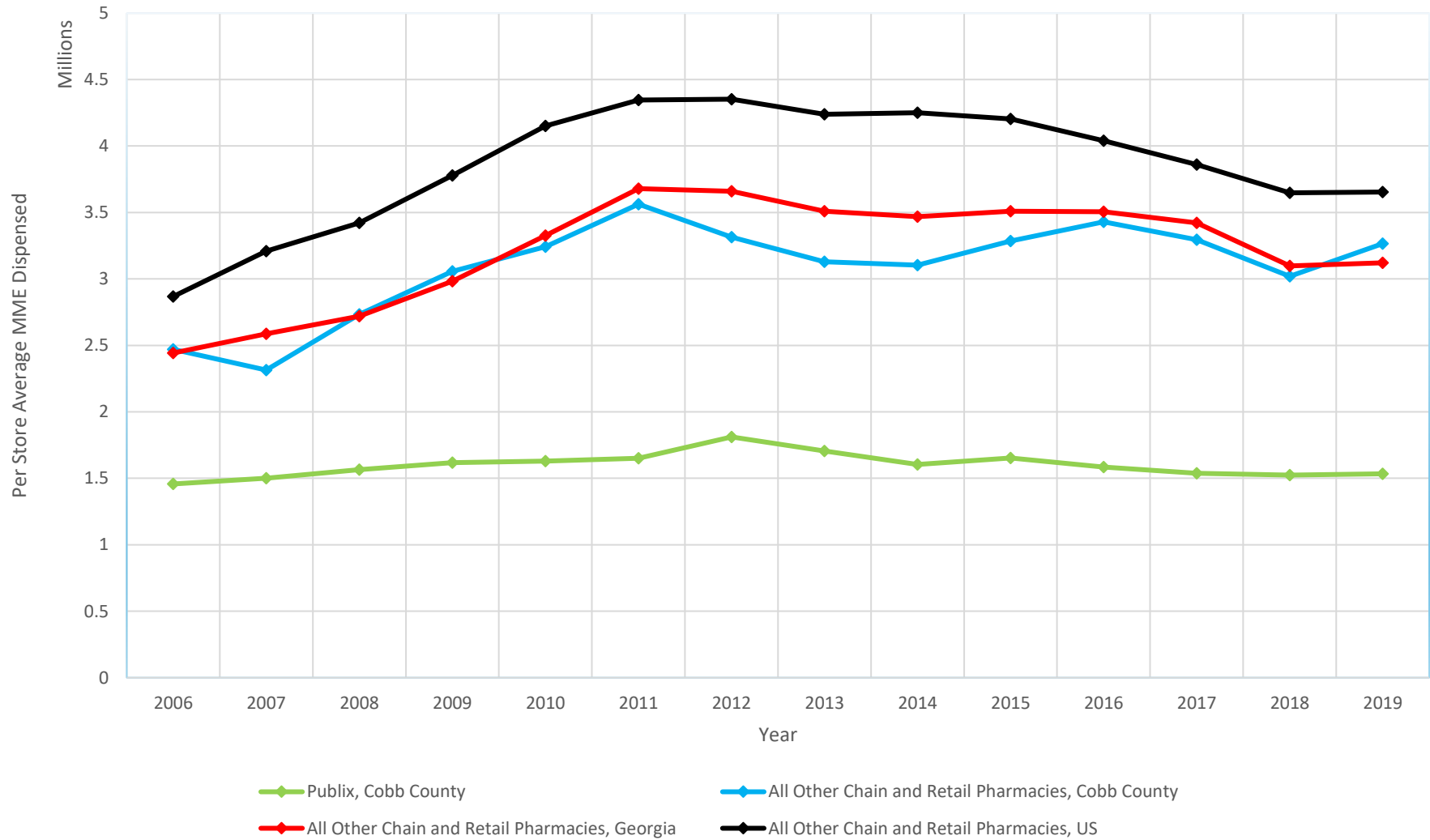


Exhibit 4E  
 Publix, Cobb County v. Purdue Pharma, et al  
 Comparison of Opioids Dispensed by Publix and All Other Chain and Retail Pharmacies, by Year  
 MME, Hydrocodone  
 All Publix Stores in Cobb County

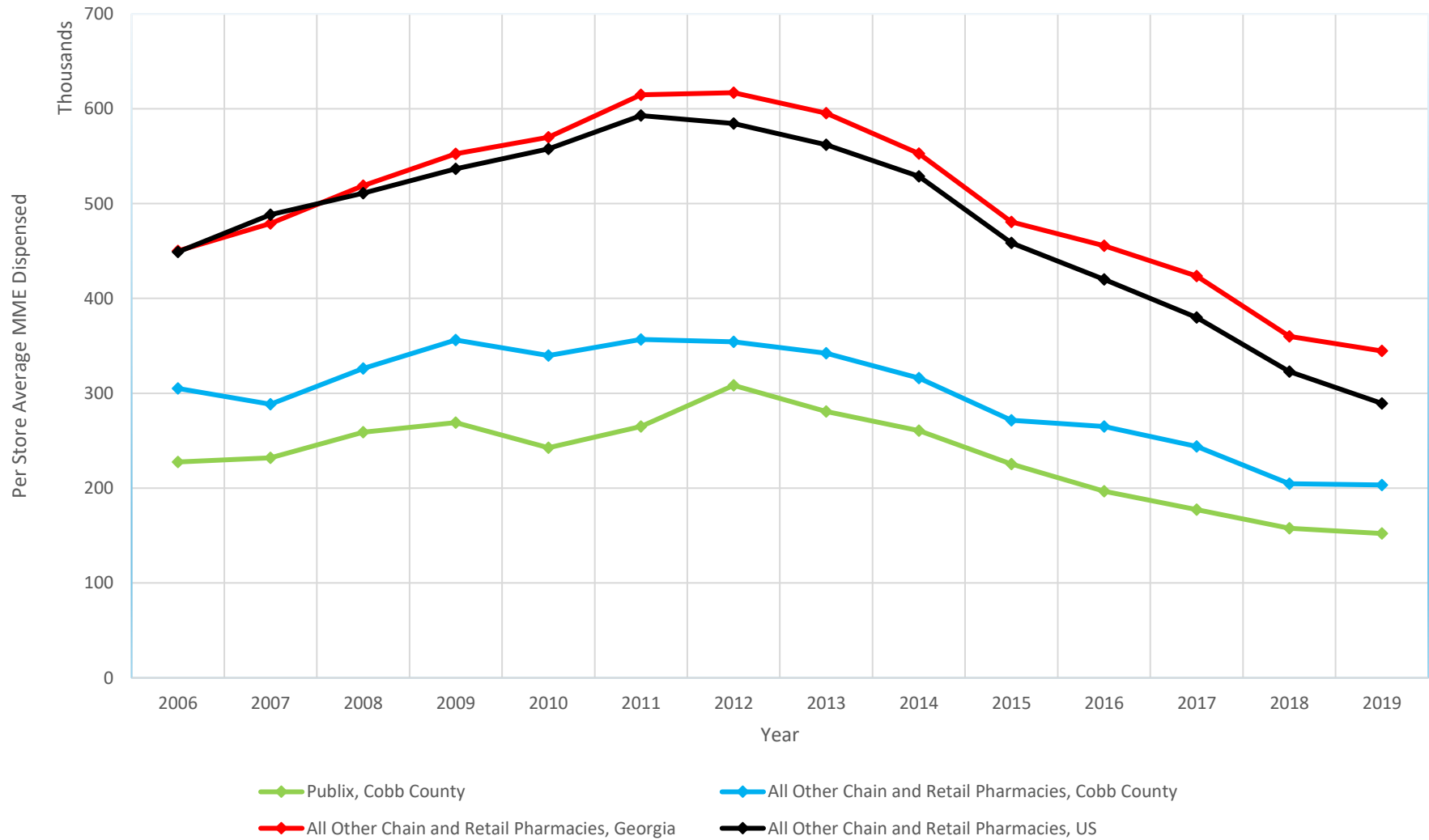
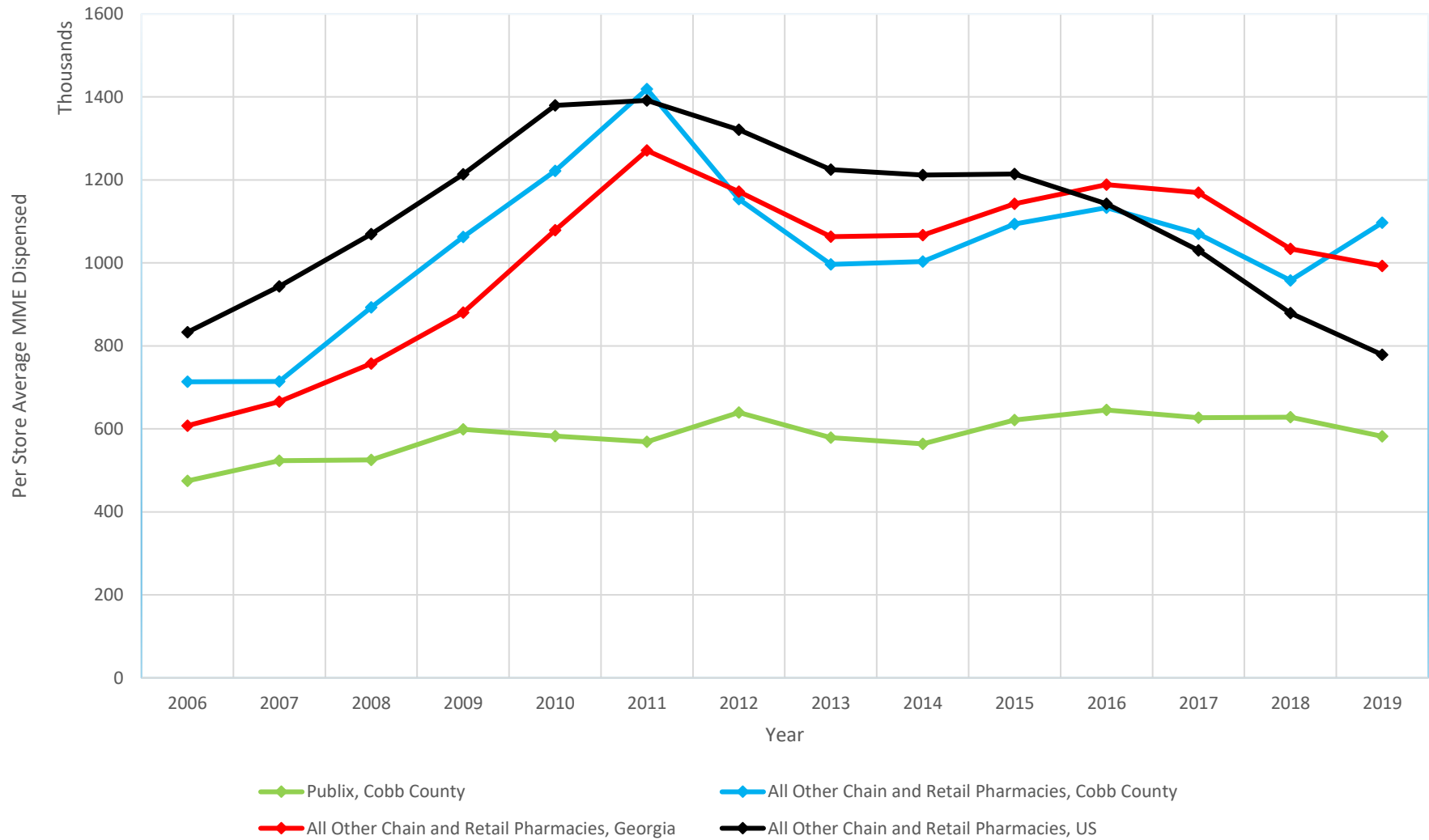
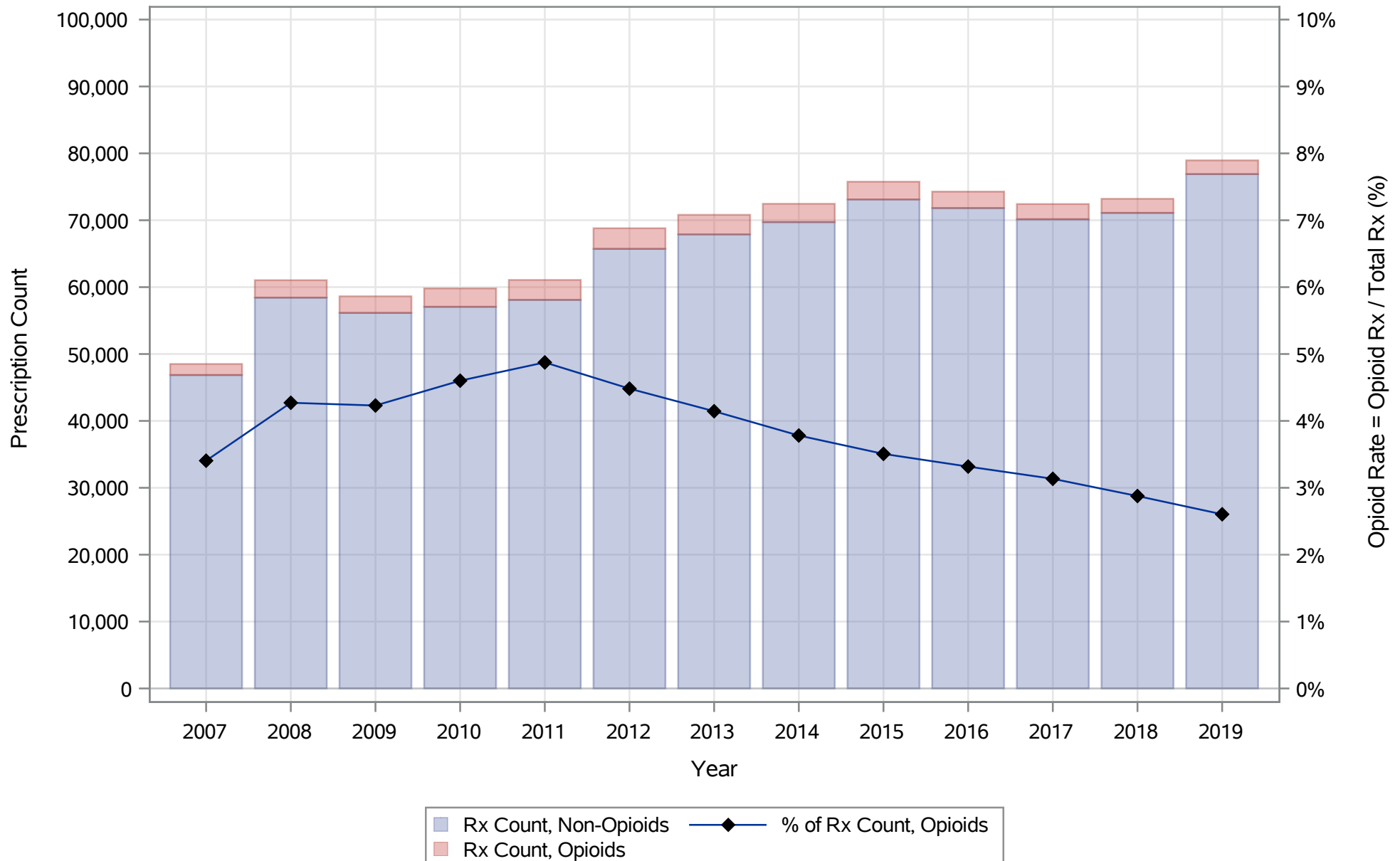




Exhibit 4F  
 Publix, Cobb County v. Purdue Pharma, et al  
 Comparison of Opioids Dispensed by Publix and All Other Chain and Retail Pharmacies, by Year  
 MME, Oxycodone  
 All Publix Stores in Cobb County



**Exhibit 5.1**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 33, DEA Number BP3387619**

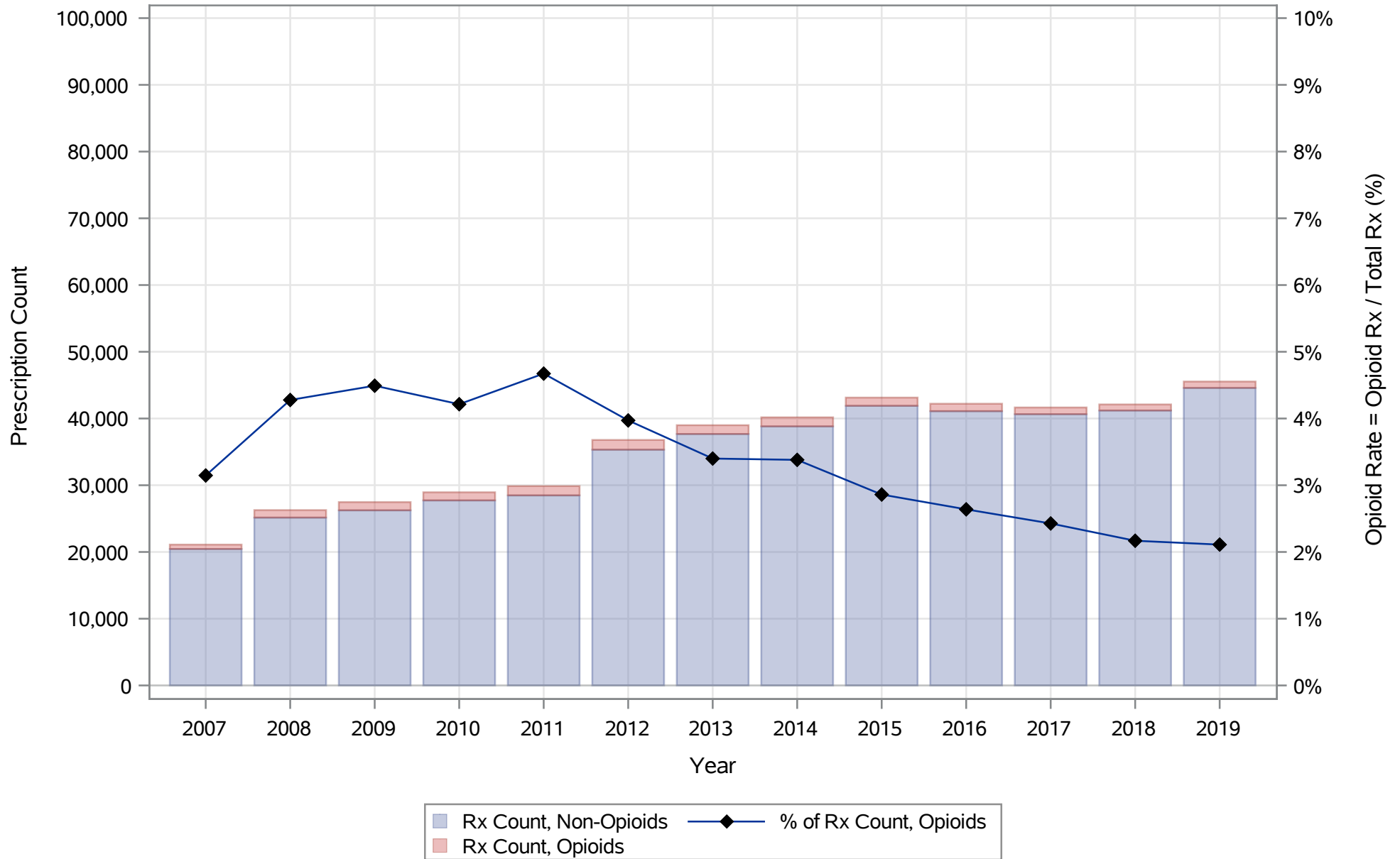


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.2**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 86, DEA Number BP7985798**

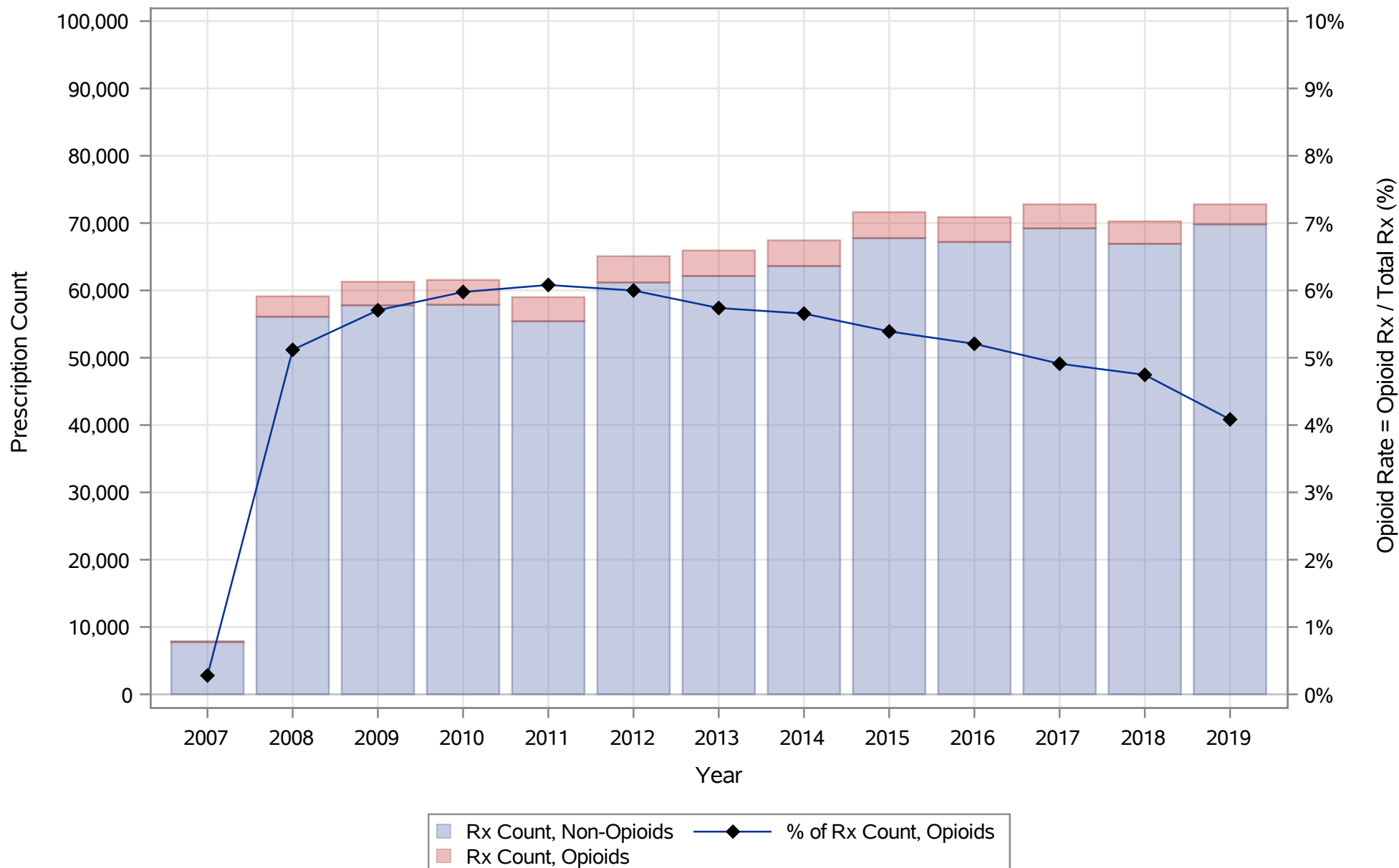


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.3**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 122, DEA Number BP3449142**

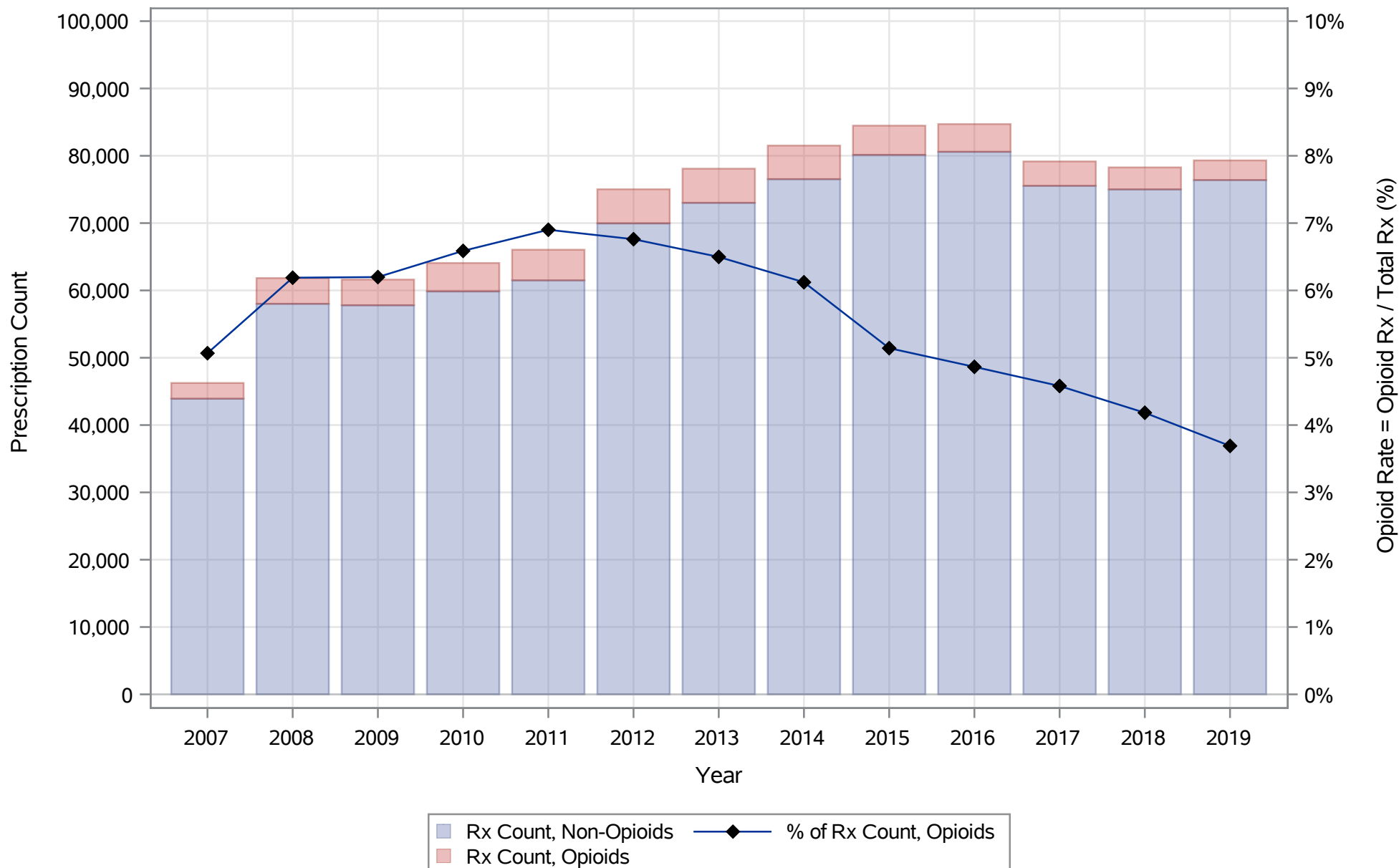


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.4**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 146, DEA Number BP3852503**



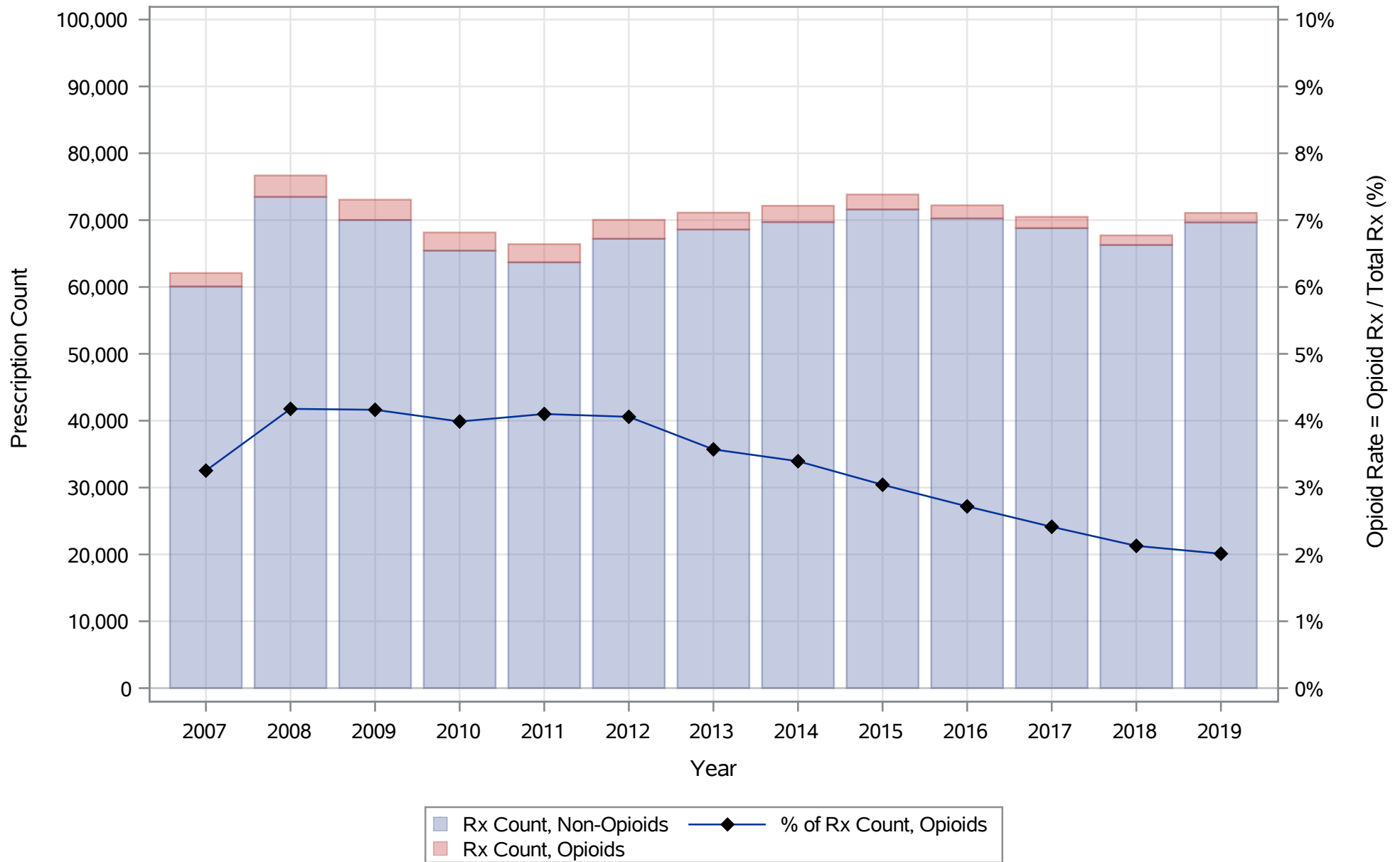
Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.5**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 155, DEA Number BP3746914**

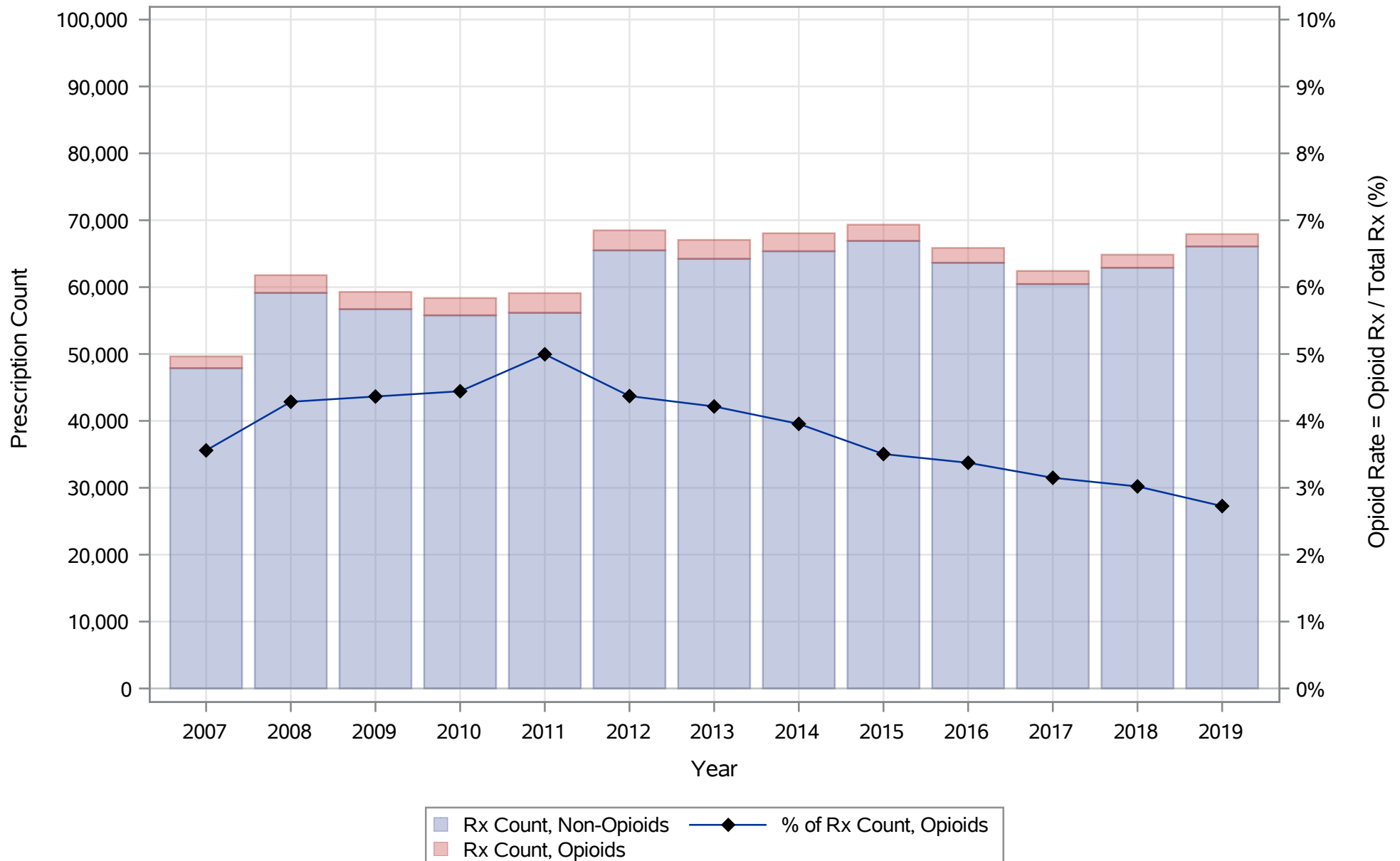


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.6**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 280, DEA Number BP3836004**

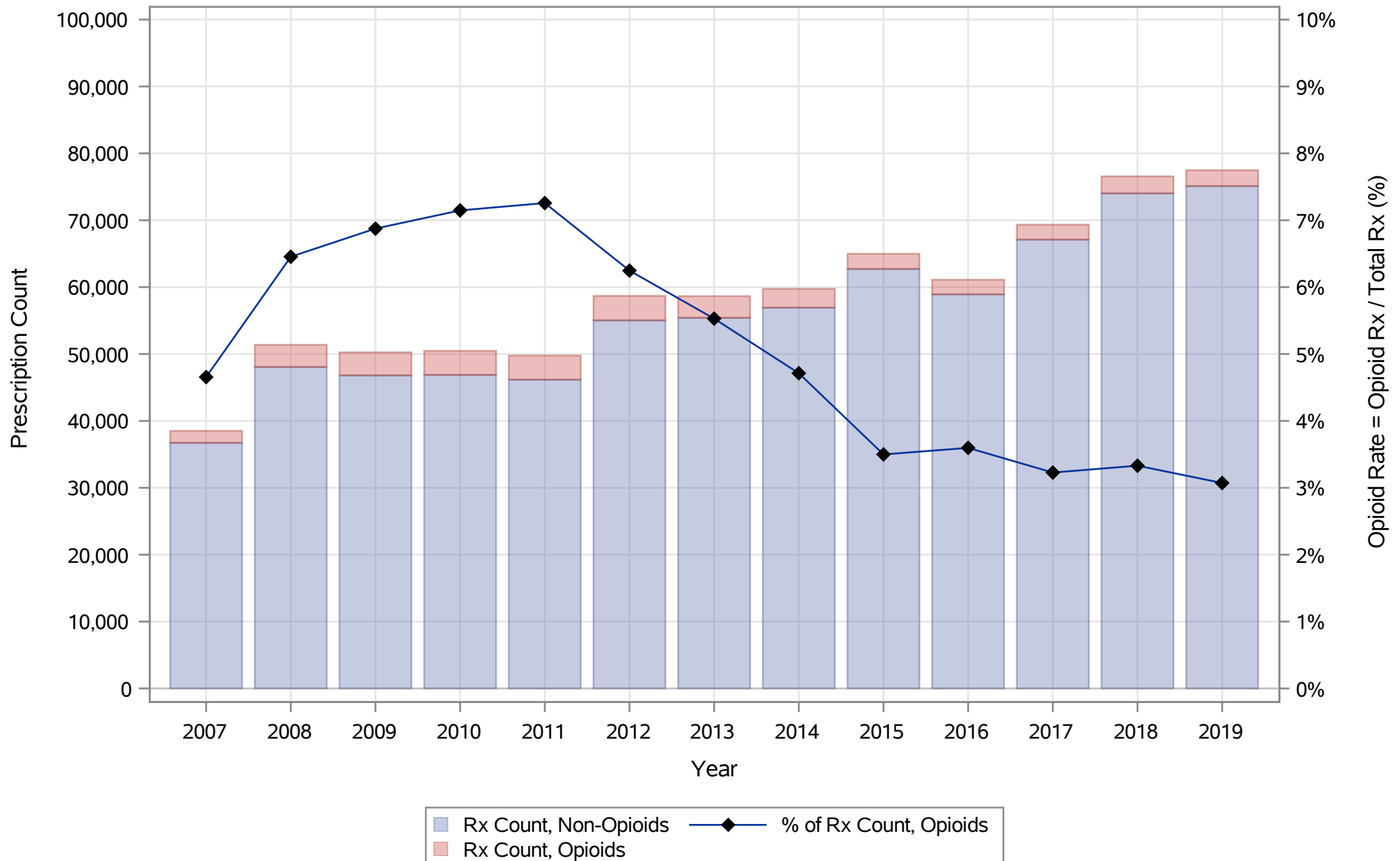


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.7**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 464, DEA Number BP3872783**



Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.8**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 496, DEA Number BP4186739**

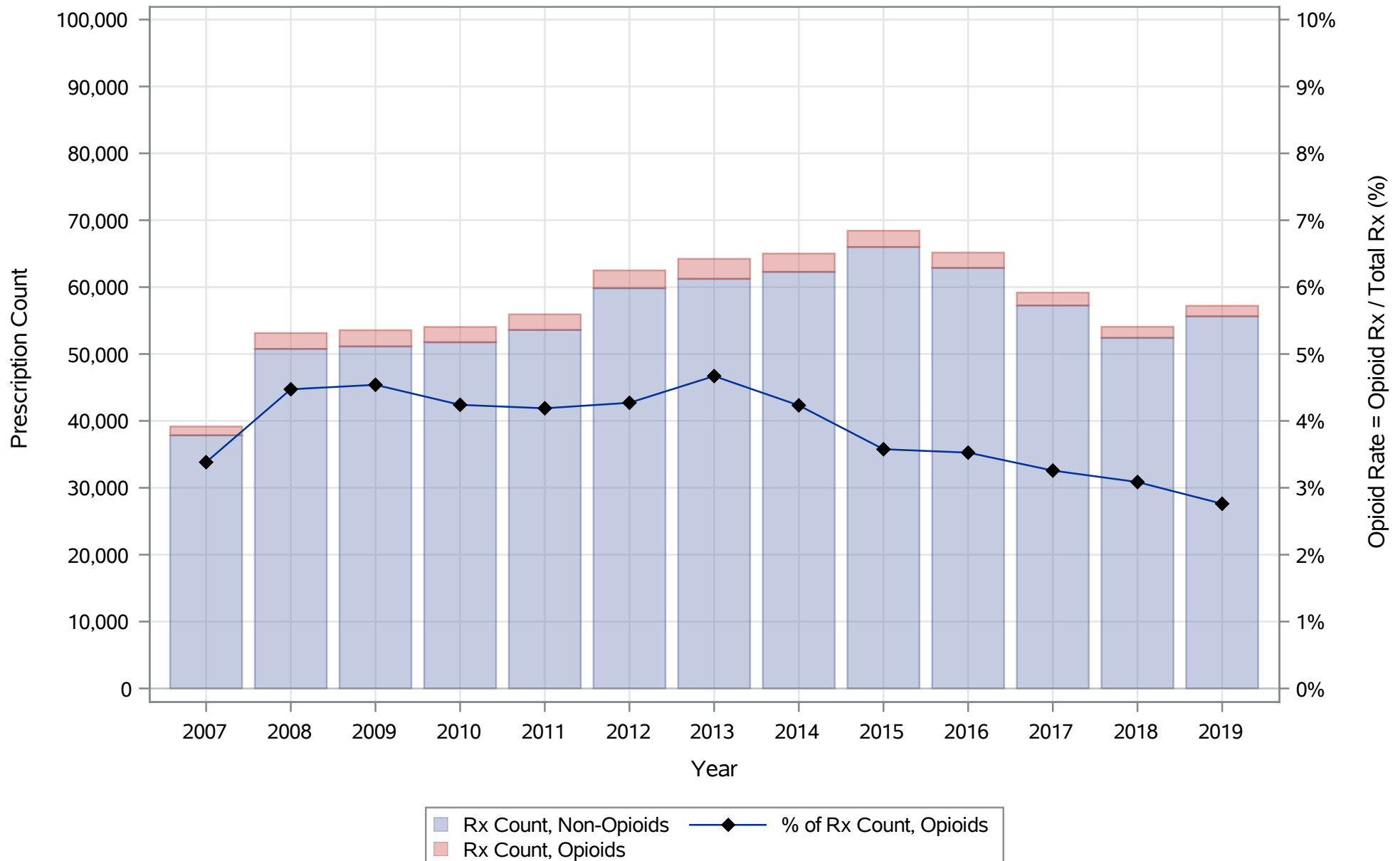


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.9**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 536, DEA Number BP4712611**



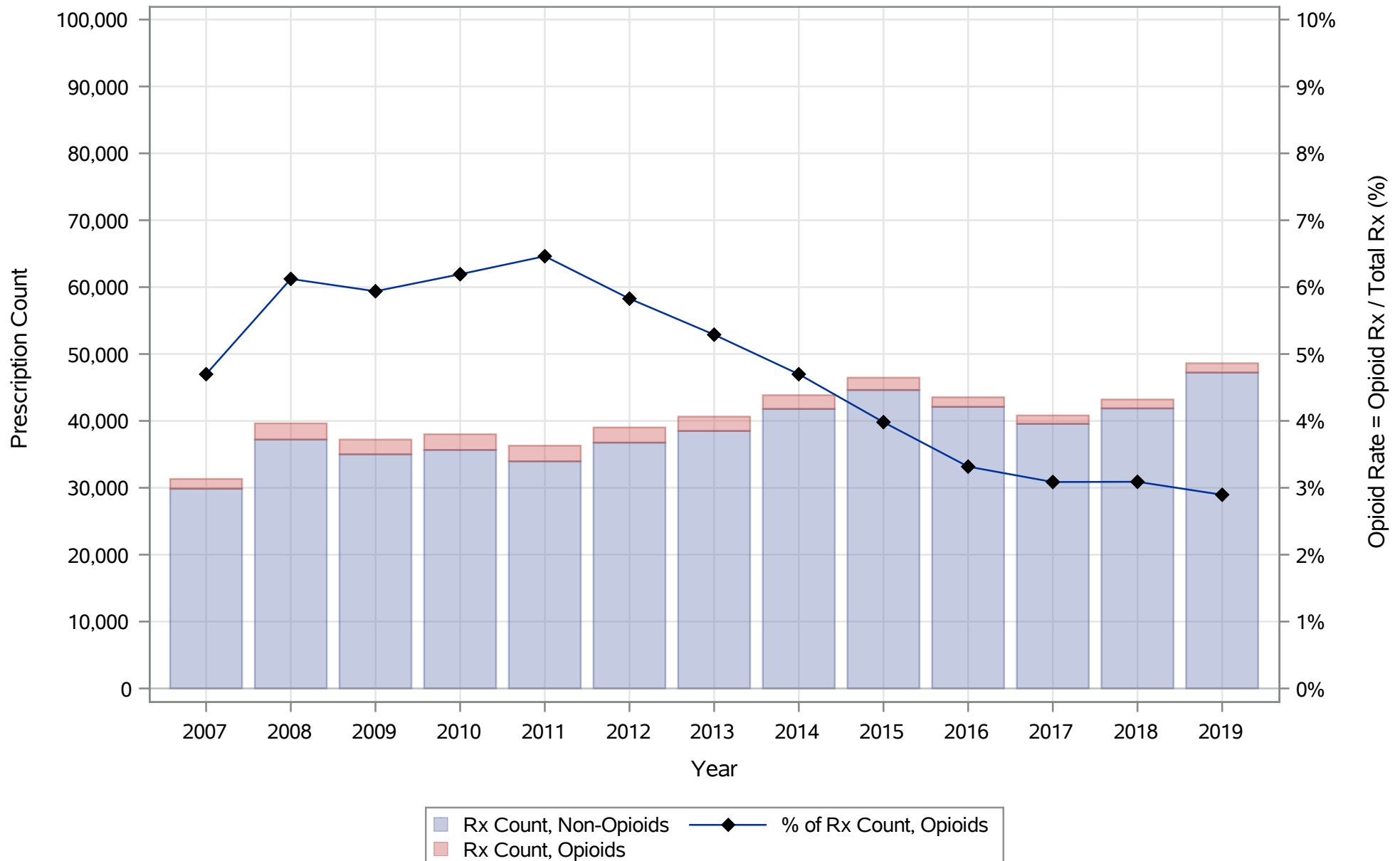
Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.10**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 548, DEA Number BP4625301**

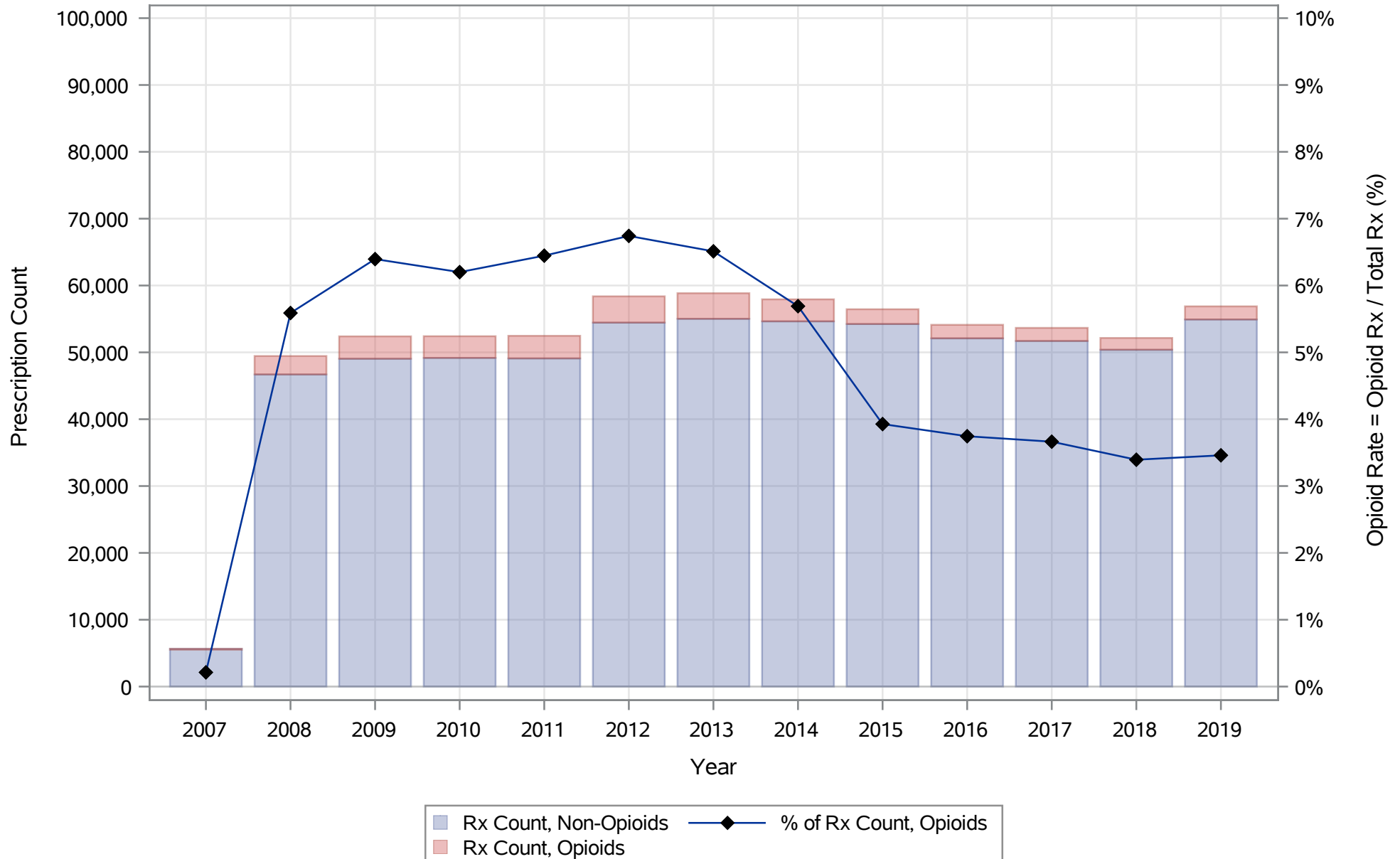


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.11**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 559, DEA Number BP4737548**

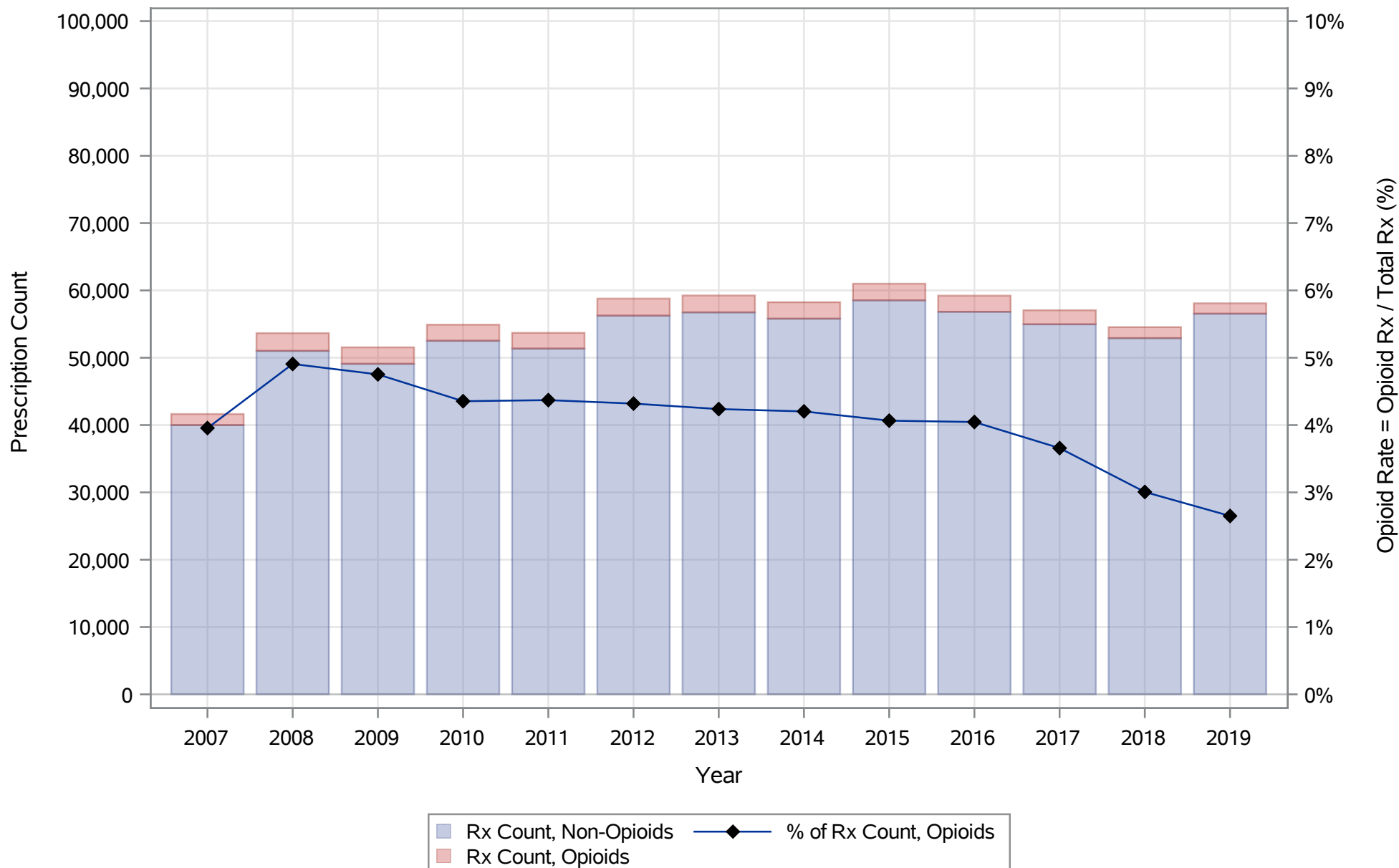


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.12**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 561, DEA Number BP4742260**

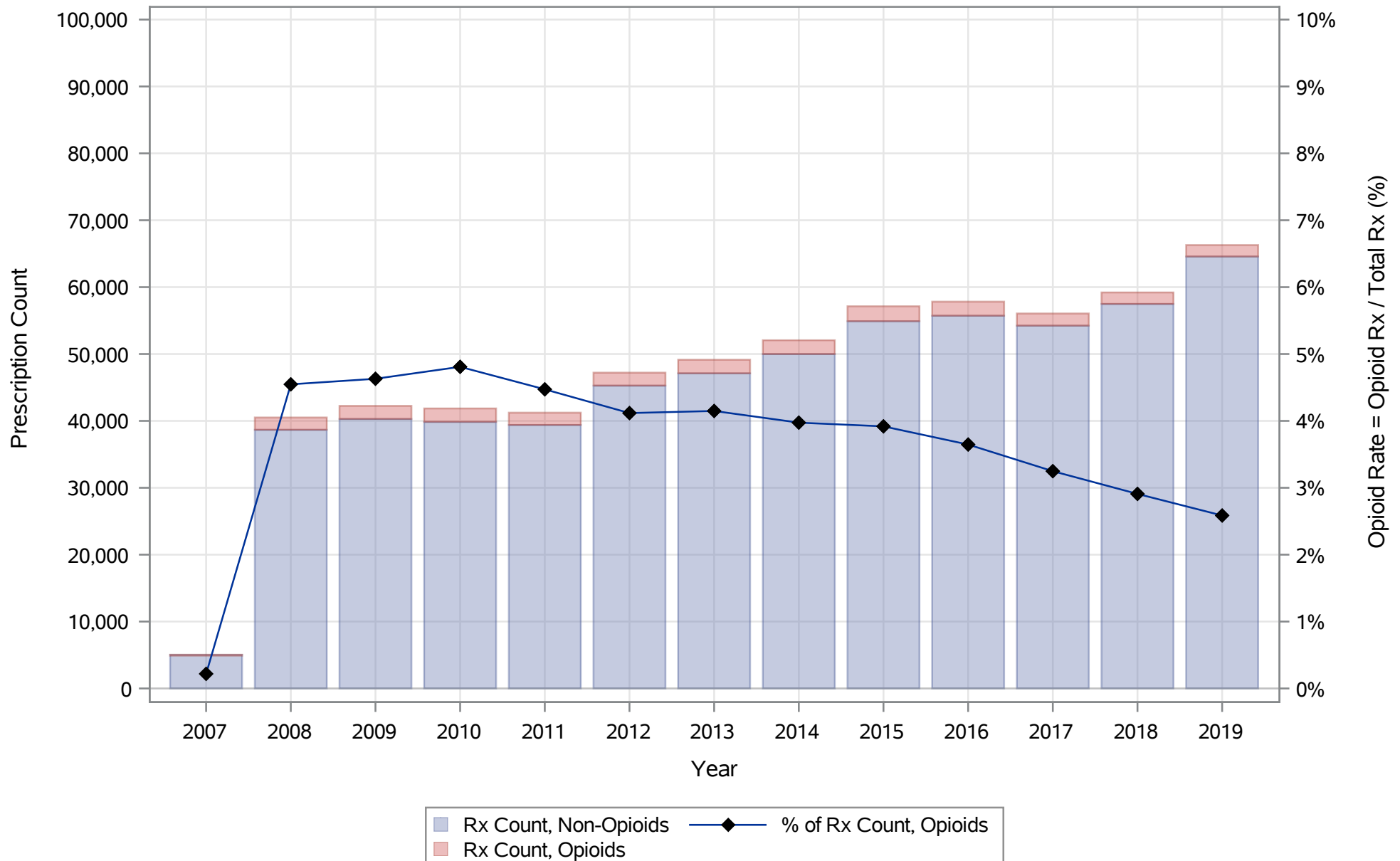


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.13**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 566, DEA Number BP4878243**

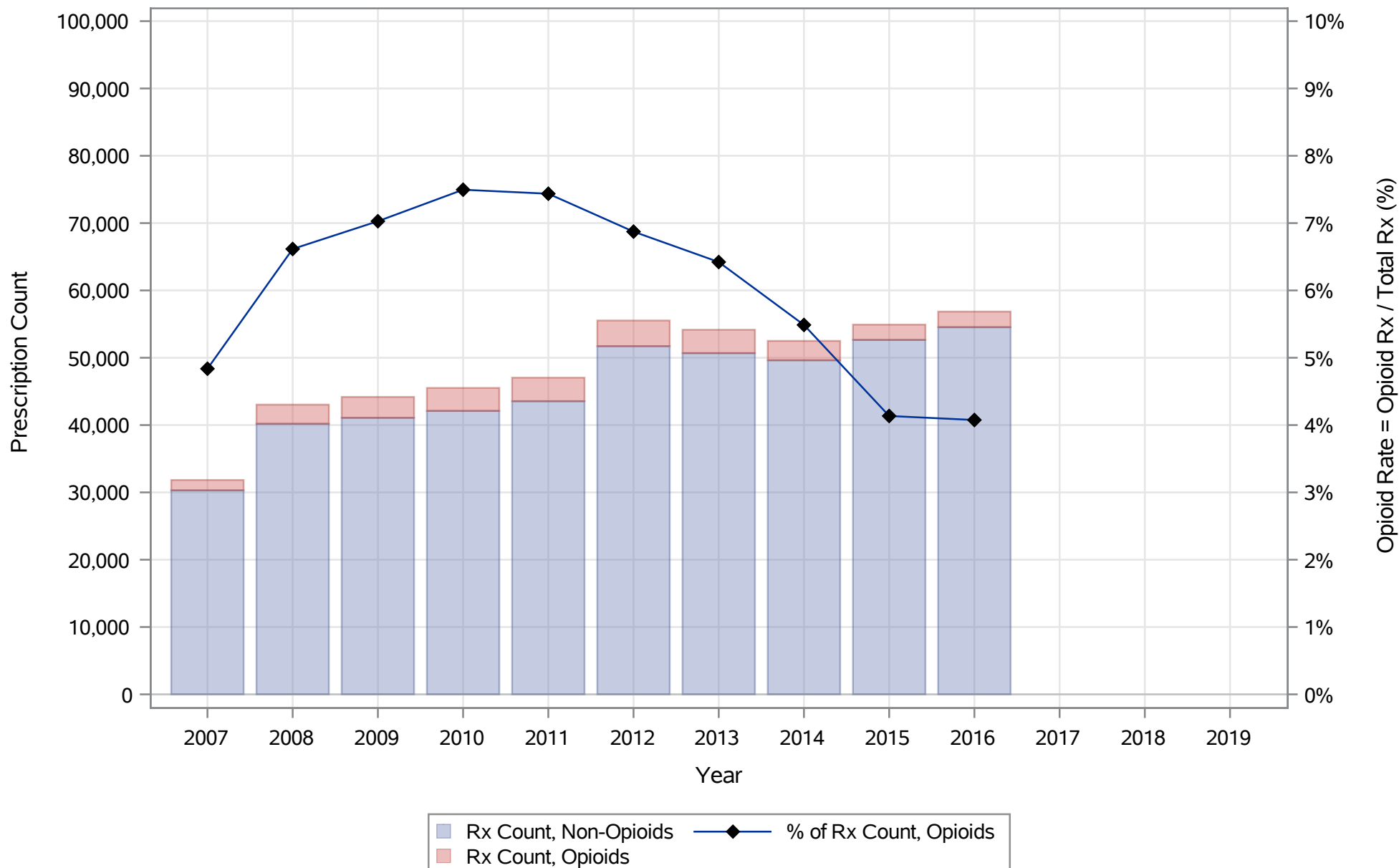


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.14**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 580, DEA Number BP5126001**



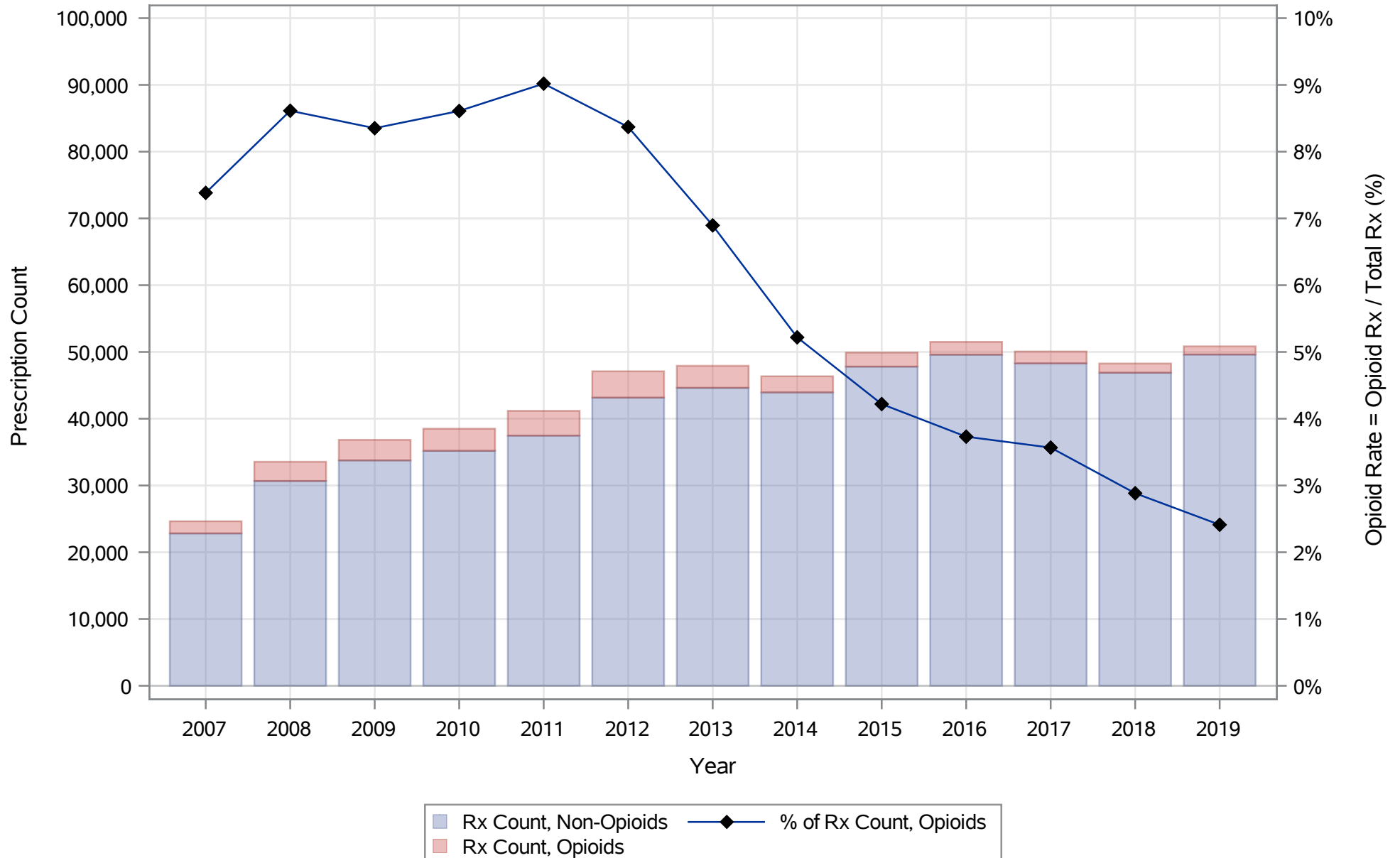
Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.15**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 593, DEA Number BP5727271**

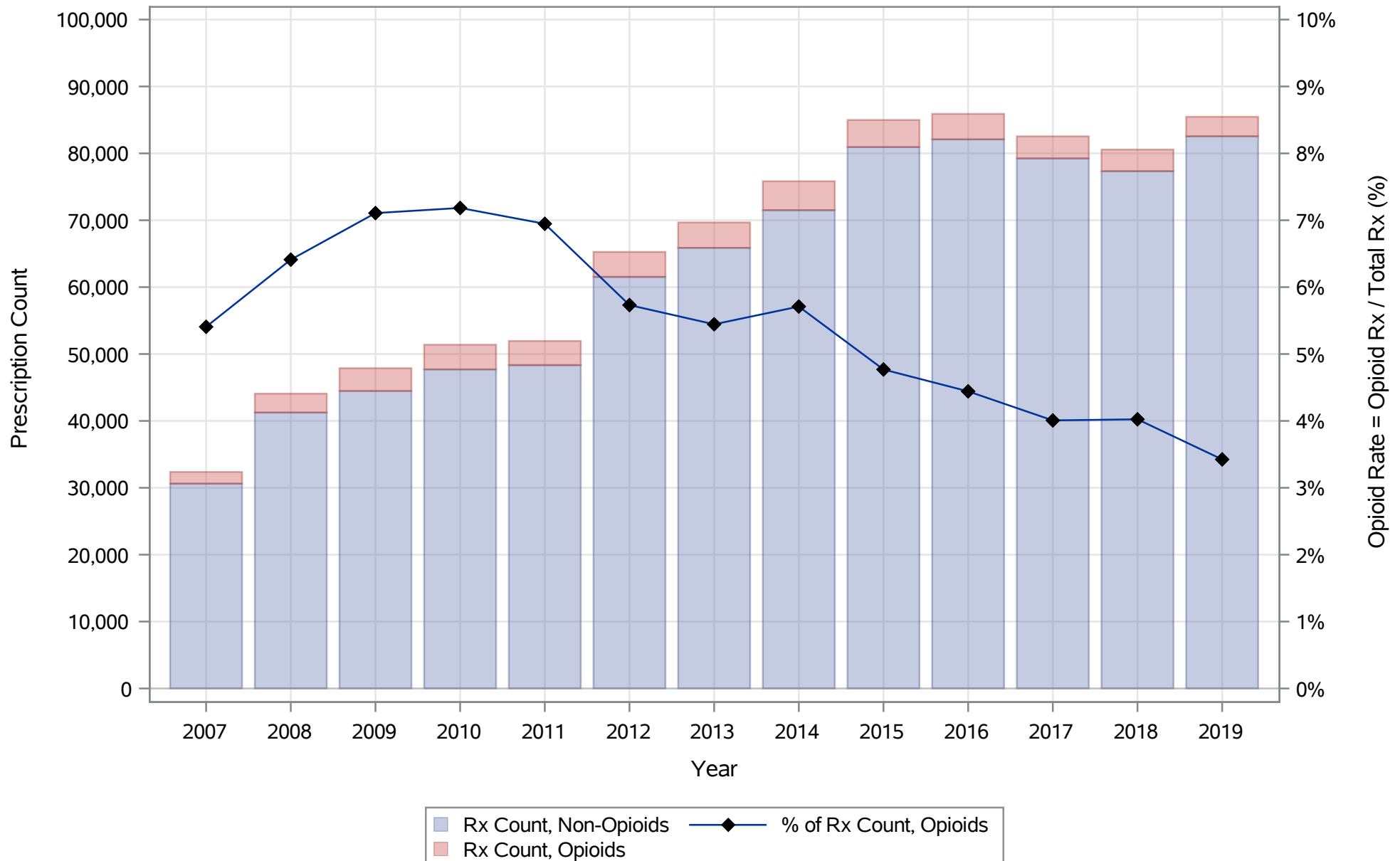


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.16**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 670, DEA Number BP6259495**

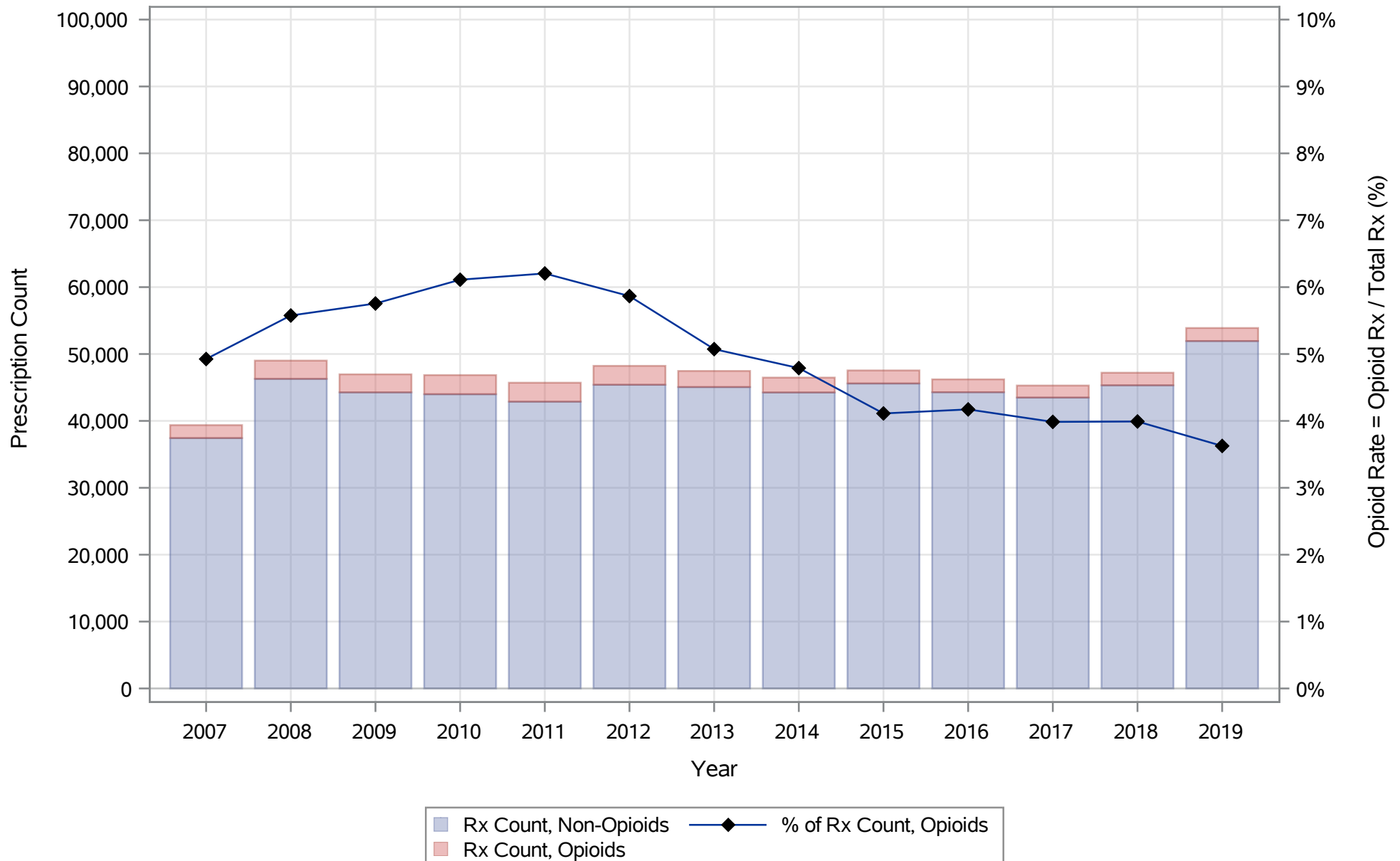


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.17**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 672, DEA Number BP6259483**

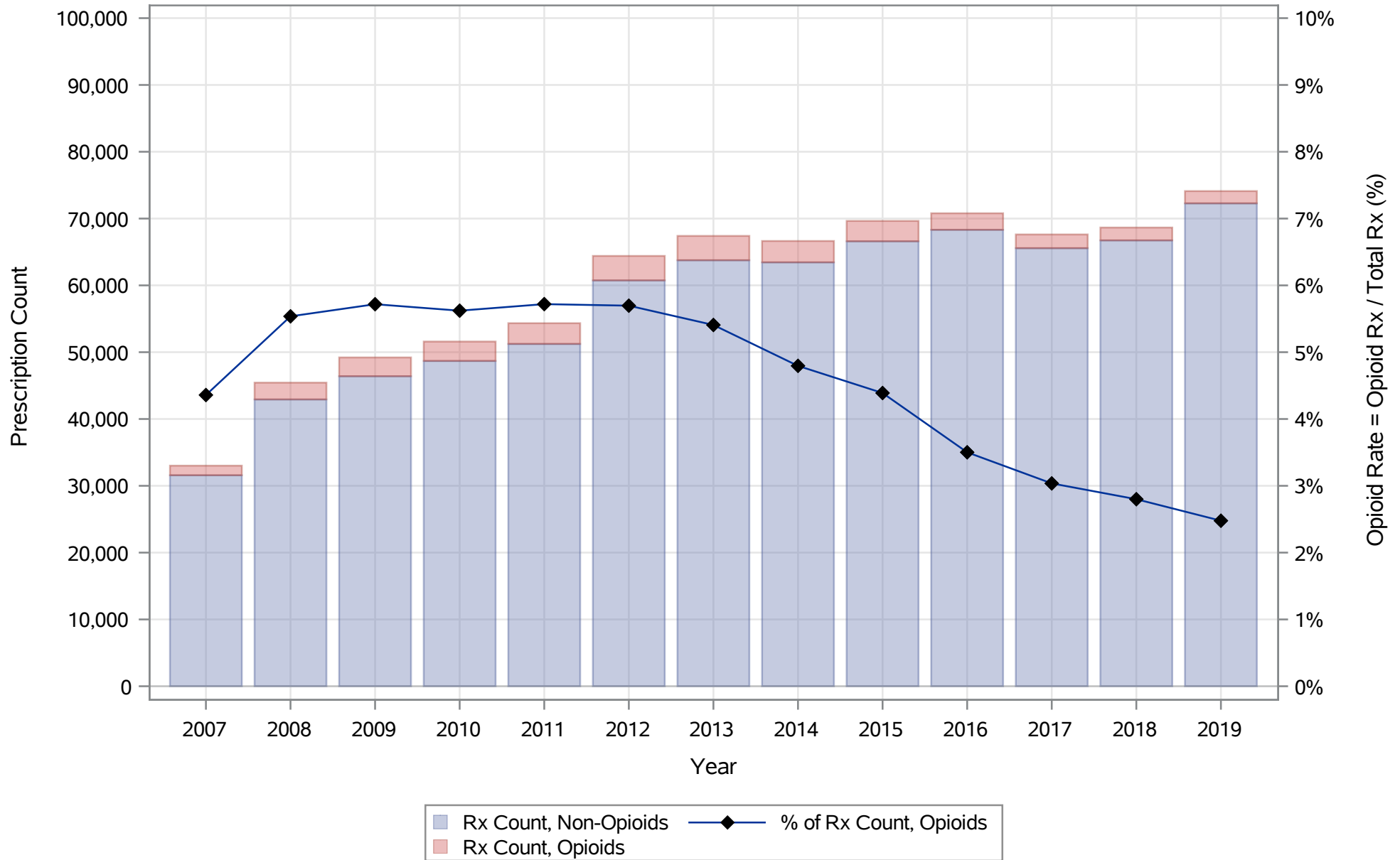


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.18**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 725, DEA Number BP6517342**

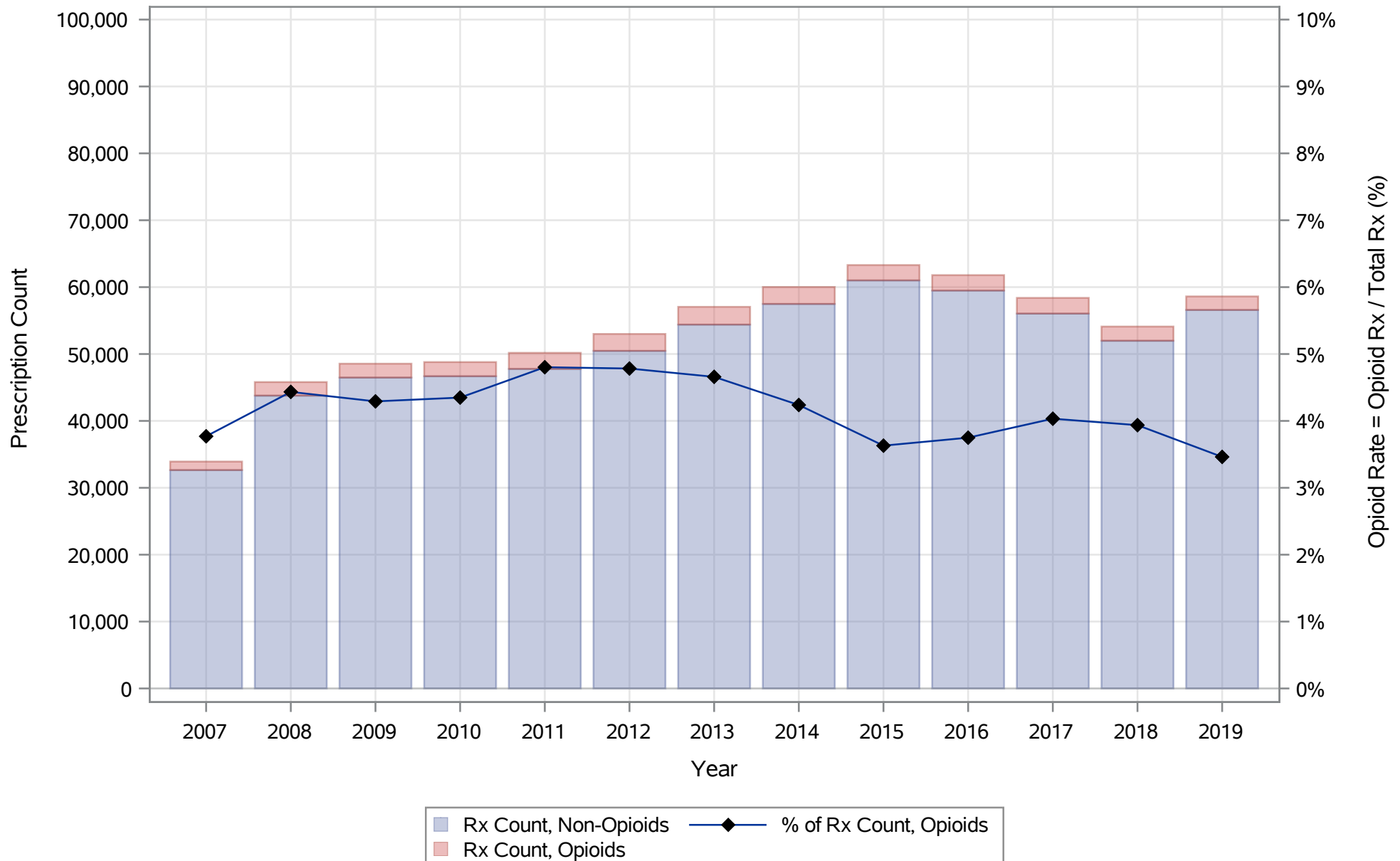


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.19**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 753, DEA Number BP7039008**



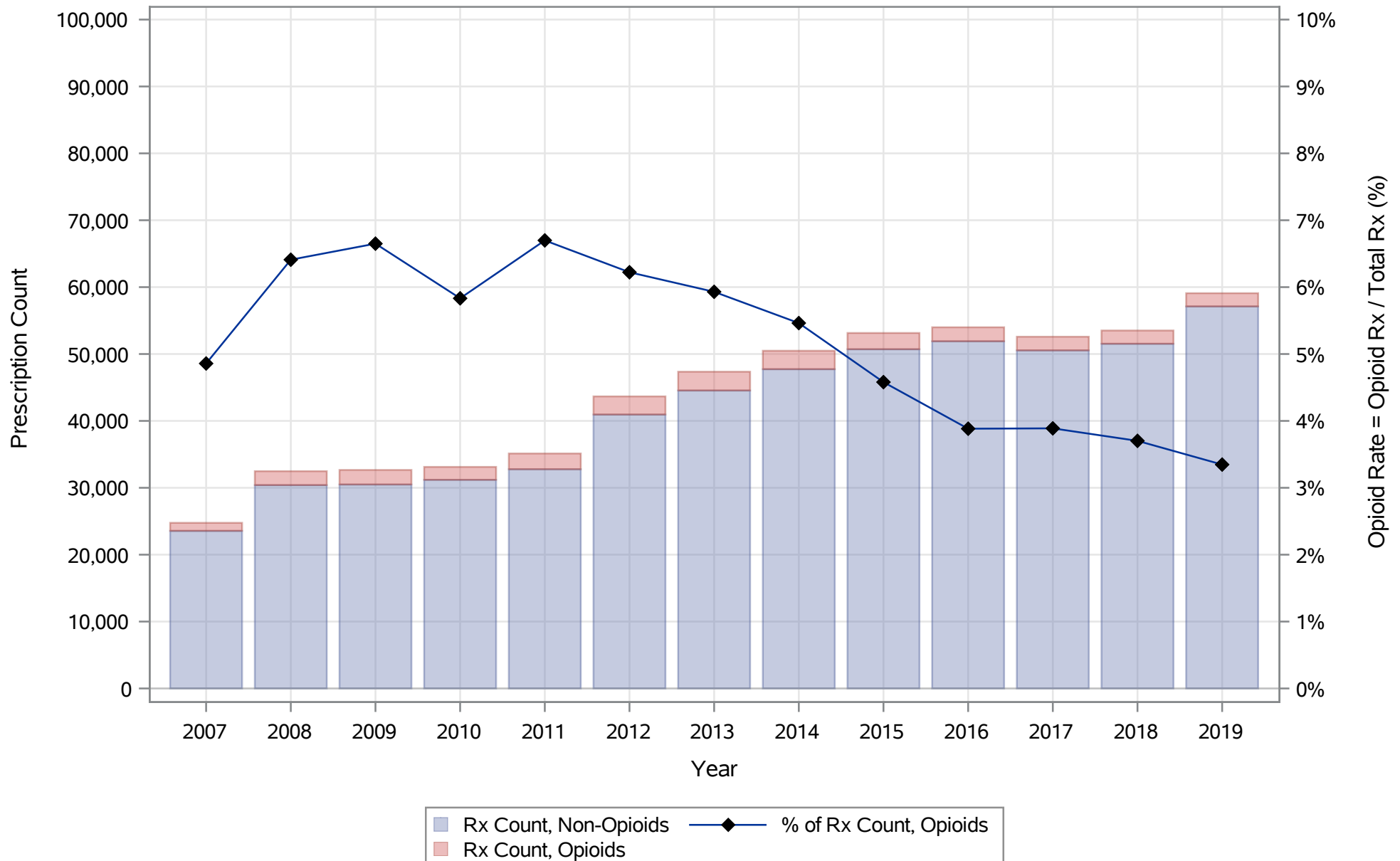
Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.20**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 764, DEA Number BP7157286**

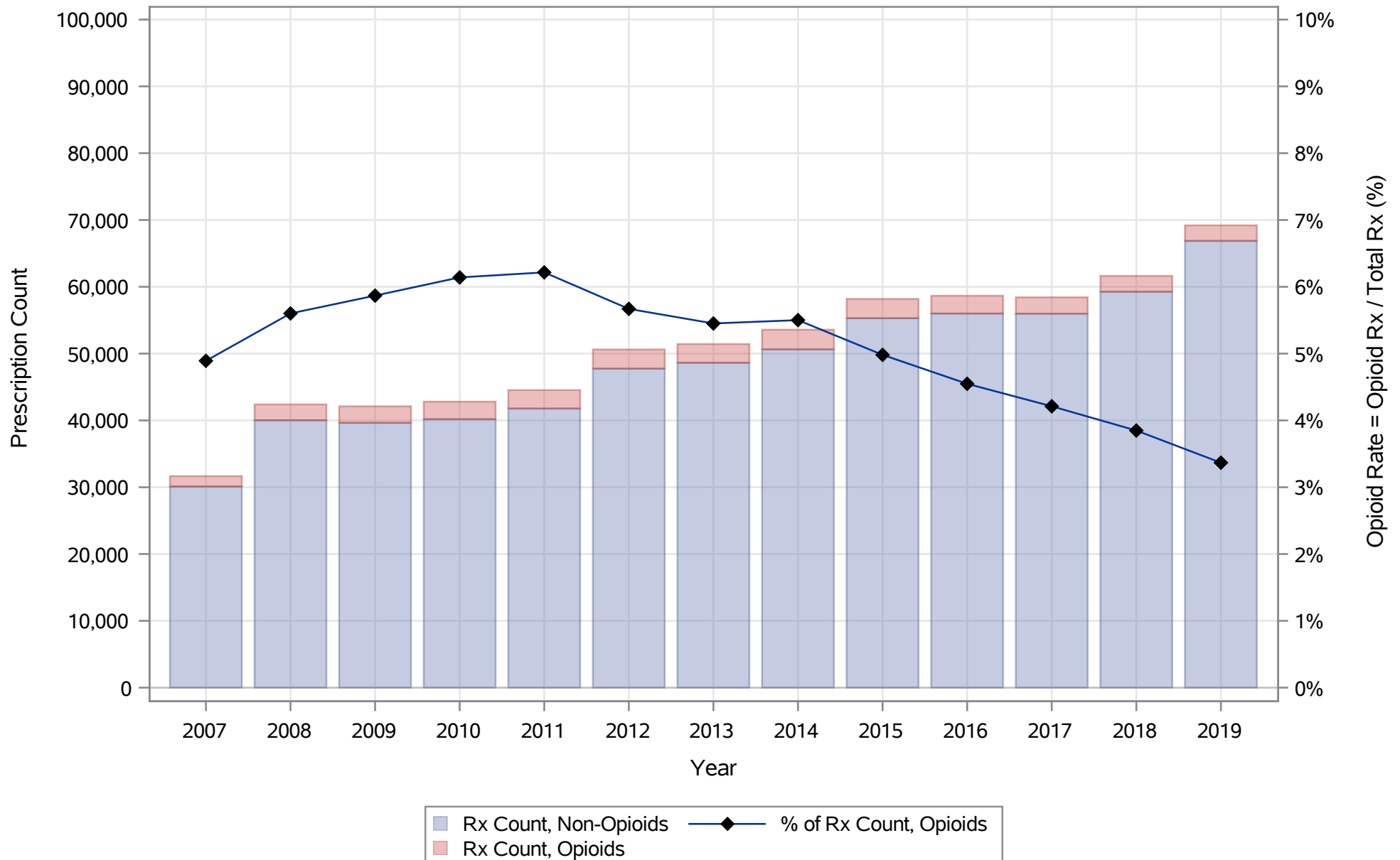


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.21**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 769, DEA Number BP7201306**

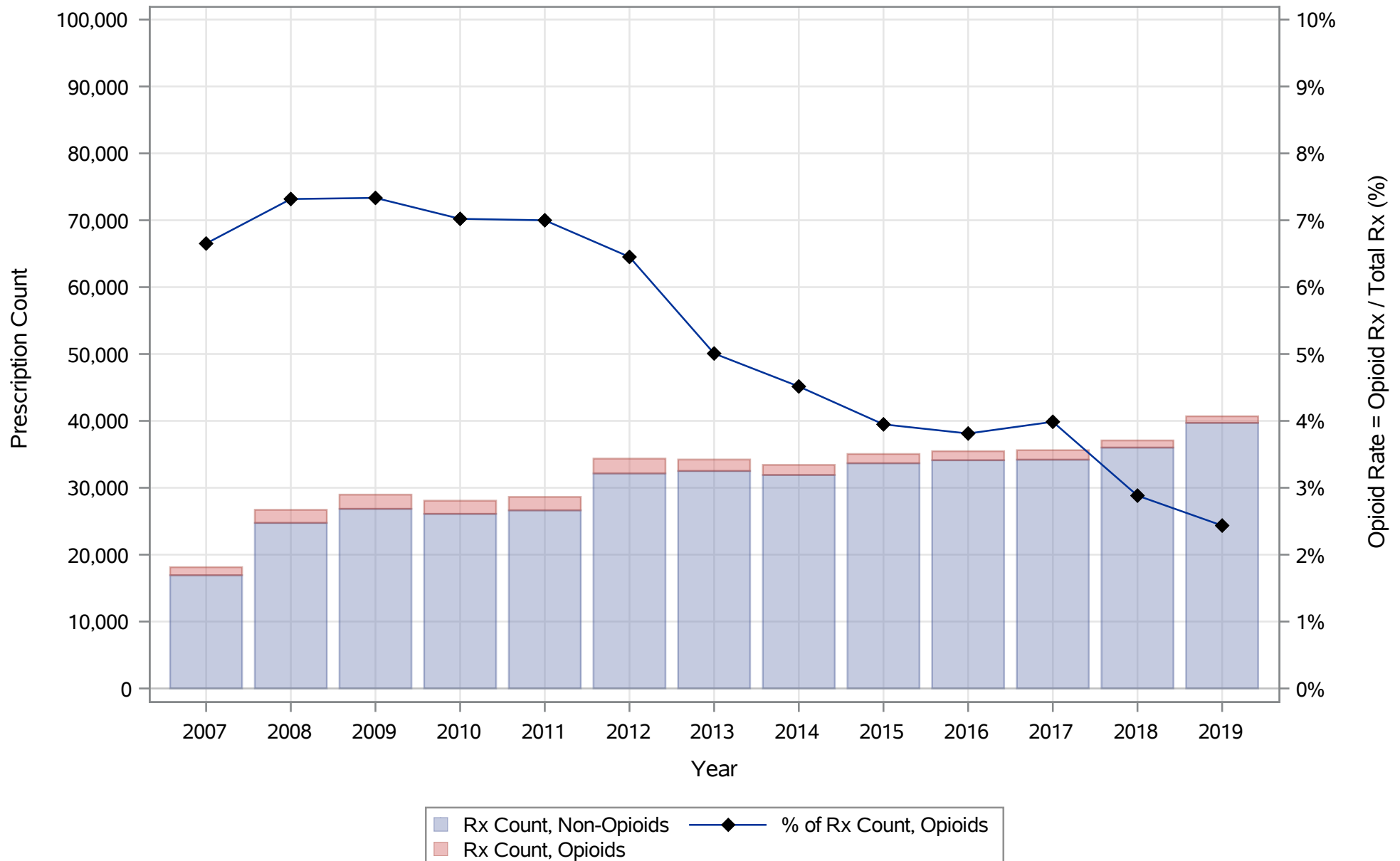


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.22**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 1077, DEA Number BP8761416**

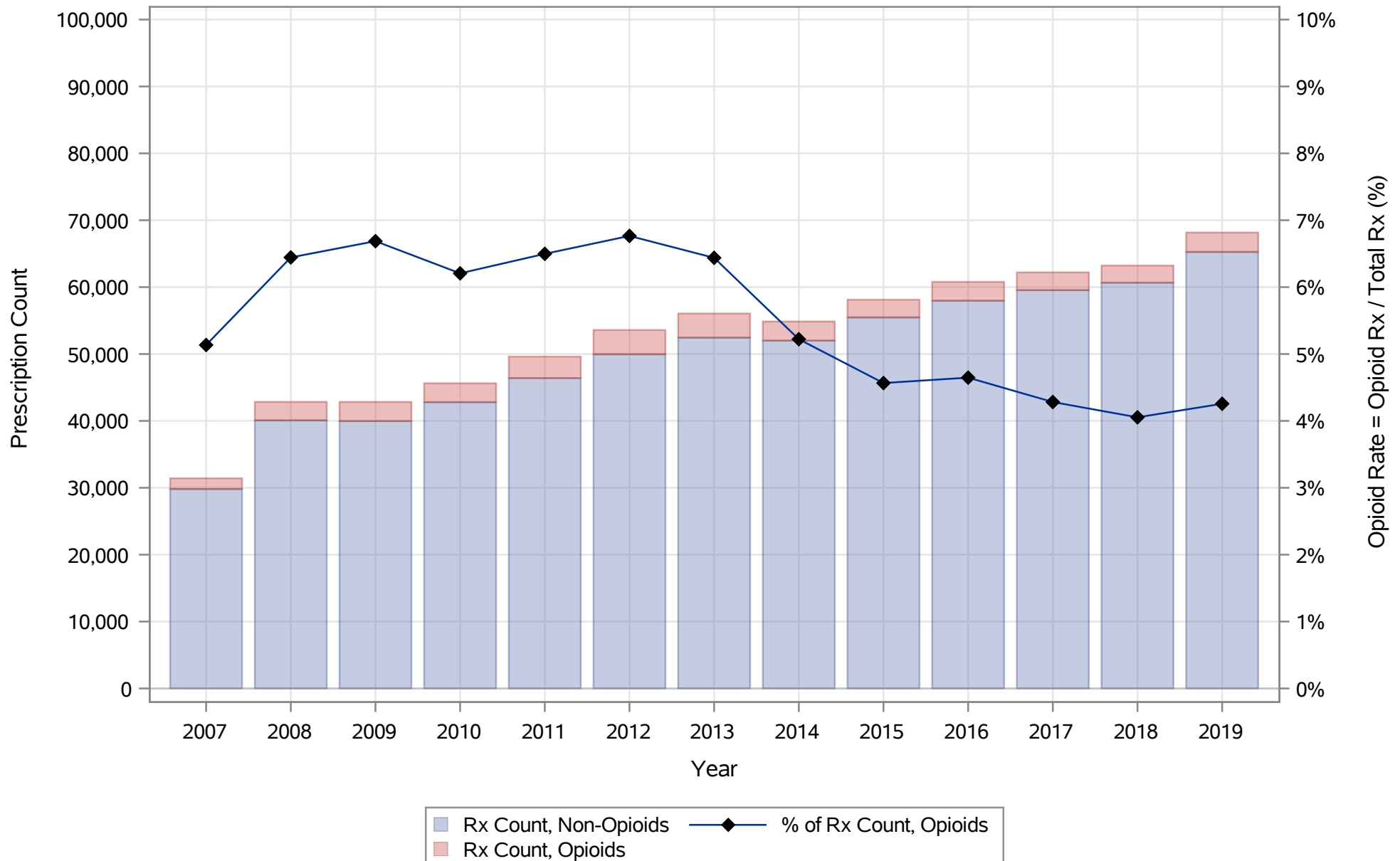


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

Confidential - Subject to Protective Order

**Exhibit 5.23**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 1096, DEA Number BP9050802**

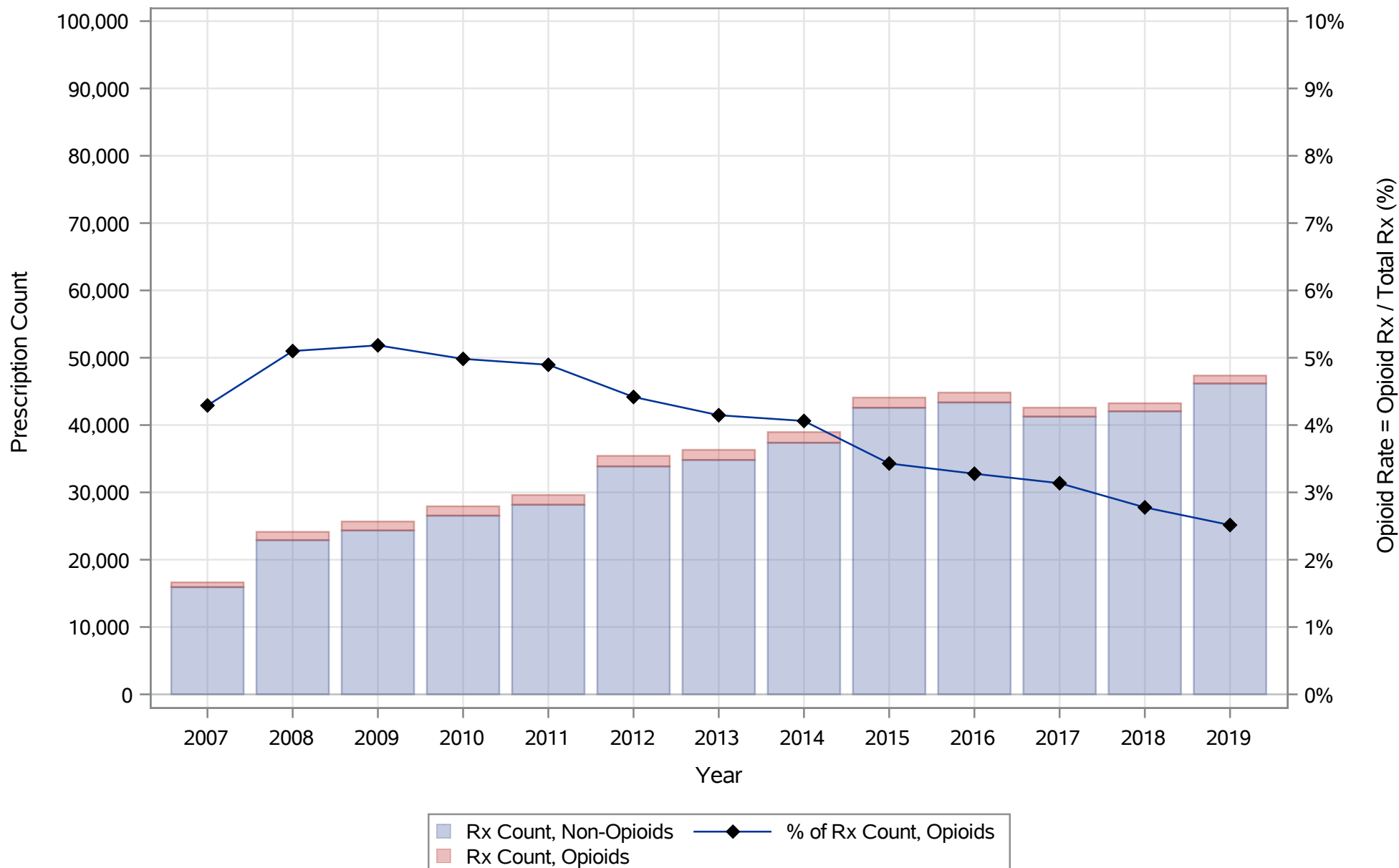


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.24**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 1112, DEA Number BP9017751**



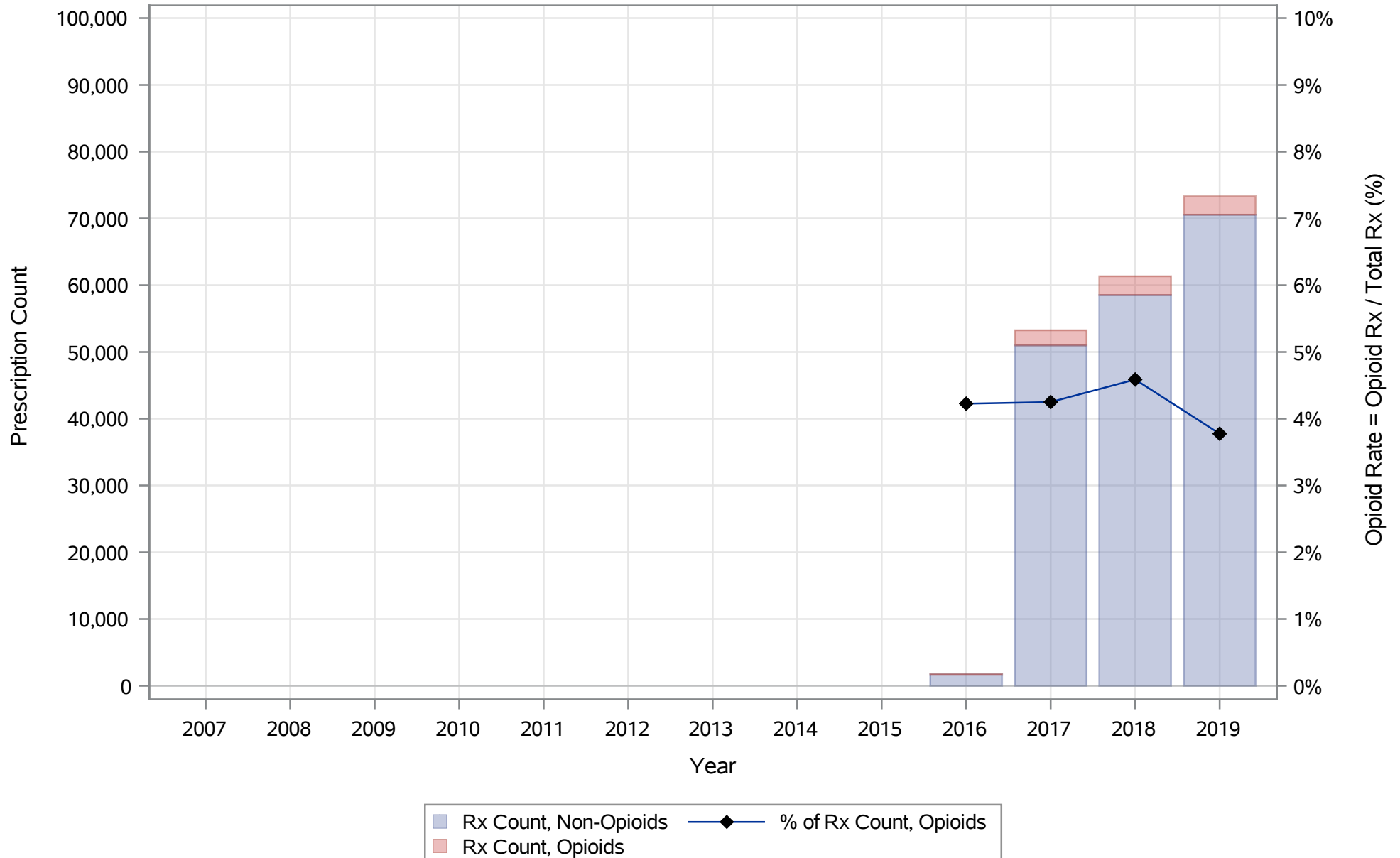
Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

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**Exhibit 5.25**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Count and Opioid Rate**  
**Store Number 1250, DEA Number FP6457382**

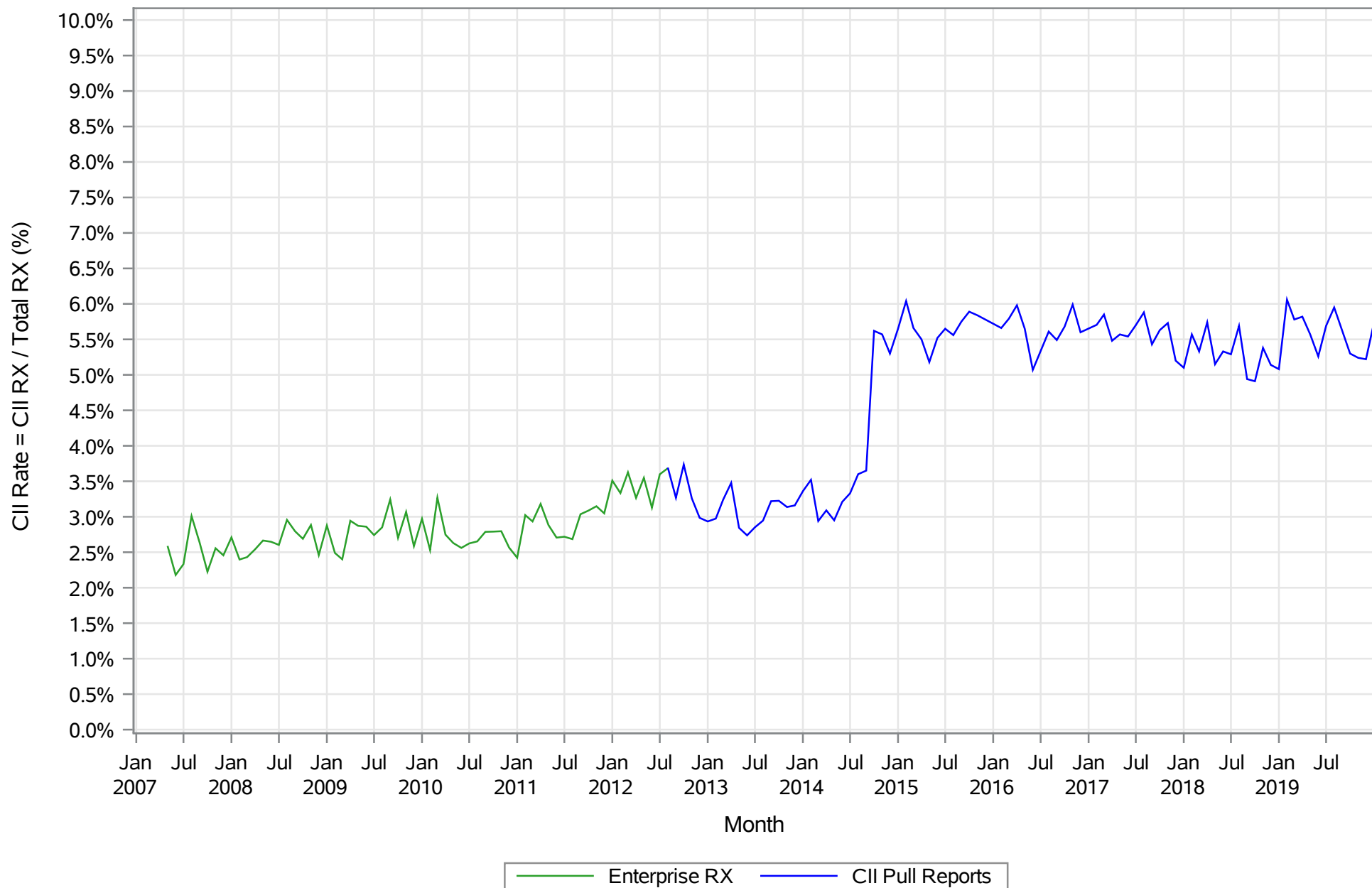


Source: Publix Enterprise Data, 2006-2022.

Notes: 2006 is not comprehensive and is therefore excluded from the chart.

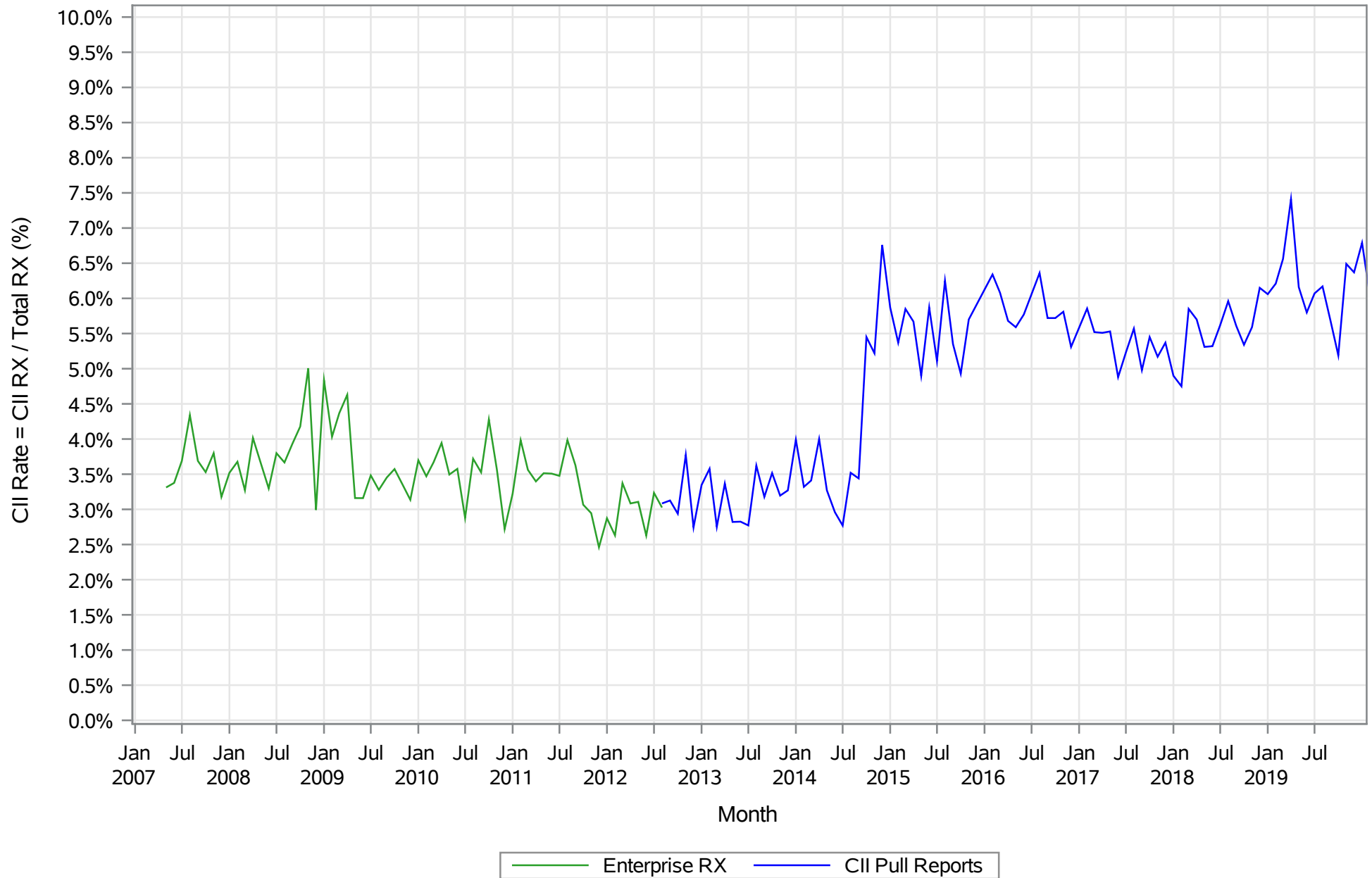
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**Exhibit 6.1**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 33, DEA Number BP3387619**



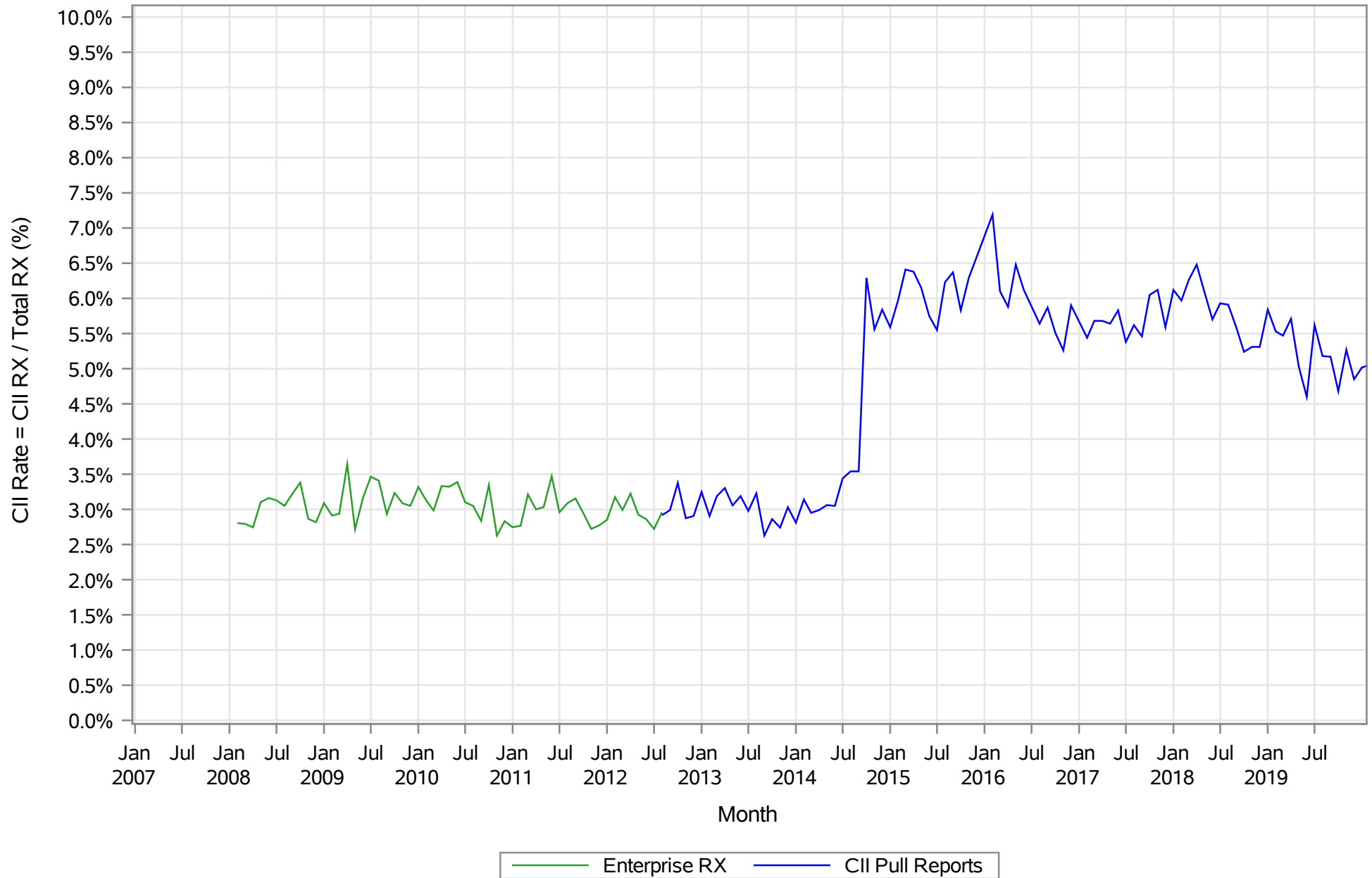
Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.2**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 86, DEA Number BP7985798**



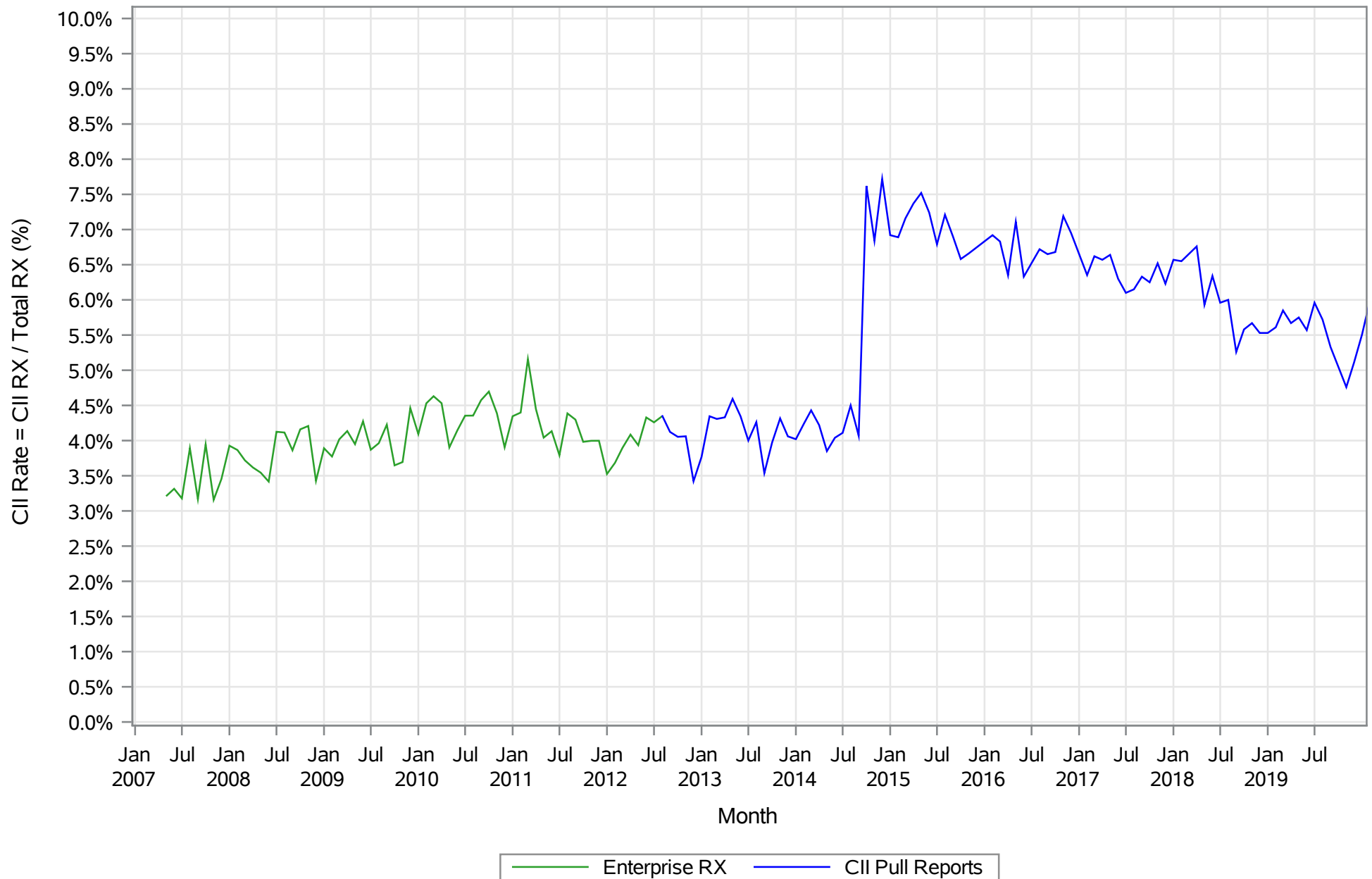
Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.3**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 122, DEA Number BP3449142**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

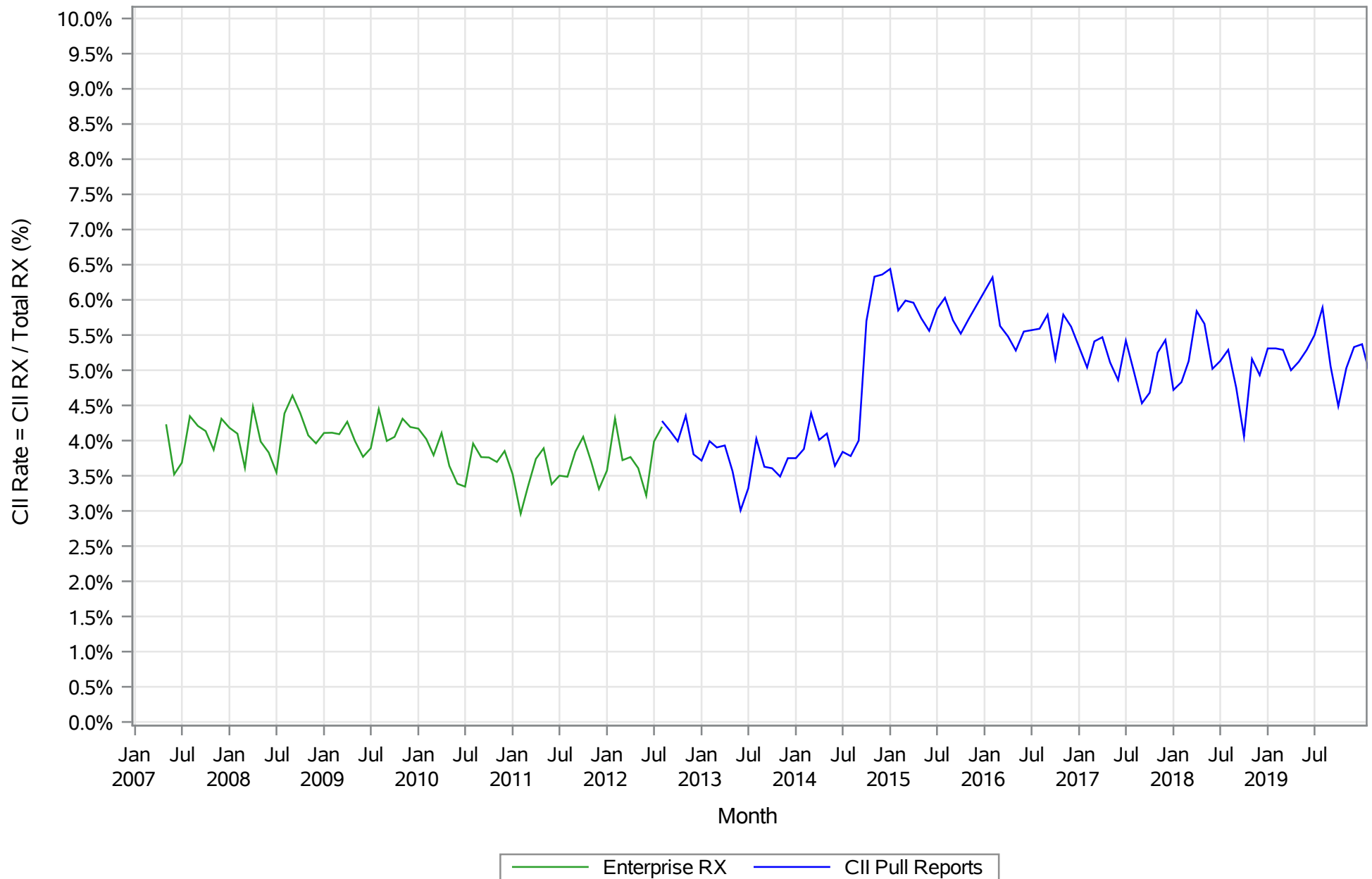
**Exhibit 6.4**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 146, DEA Number BP3852503**



Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

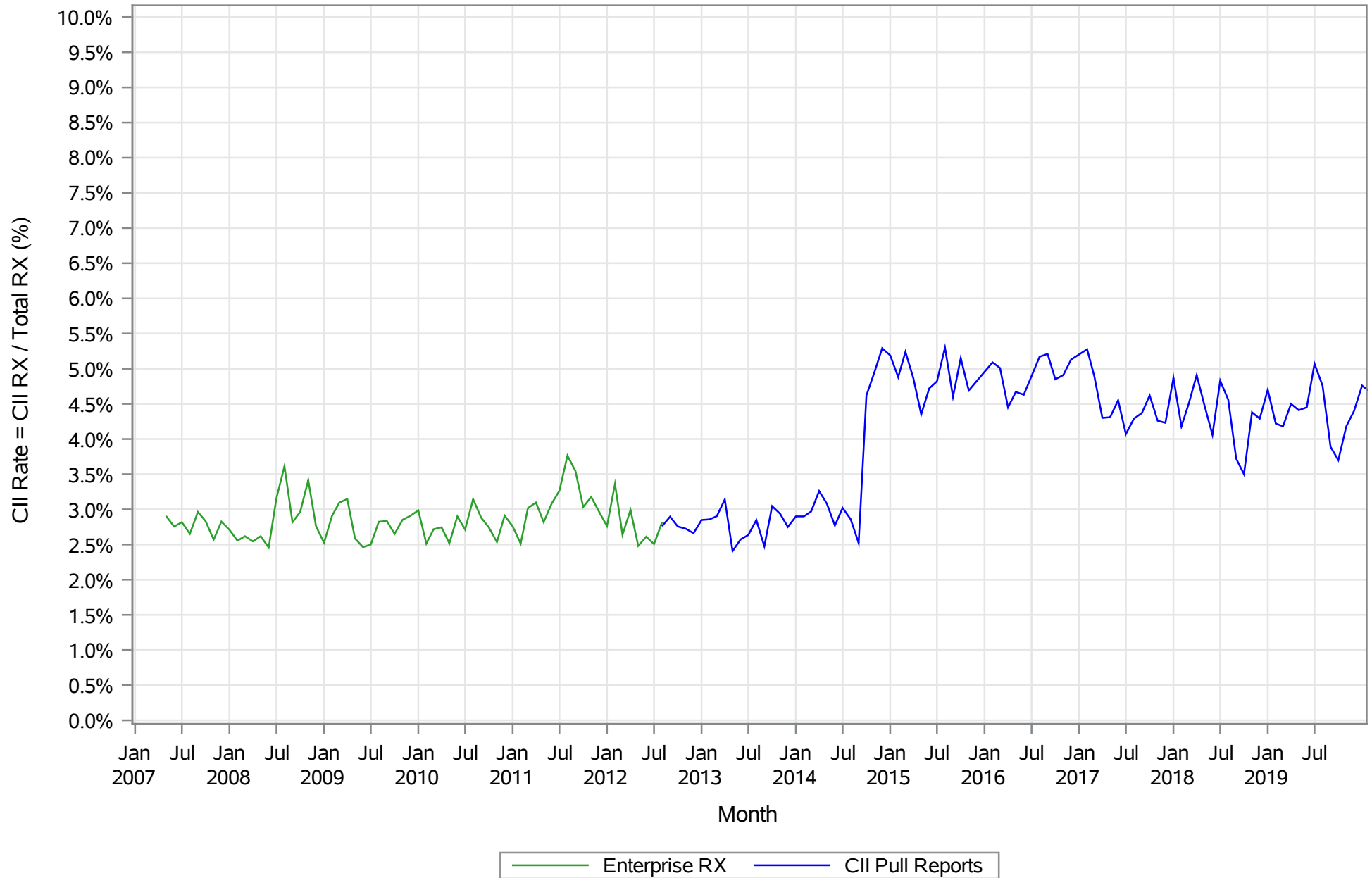


**Exhibit 6.5**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 155, DEA Number BP3746914**



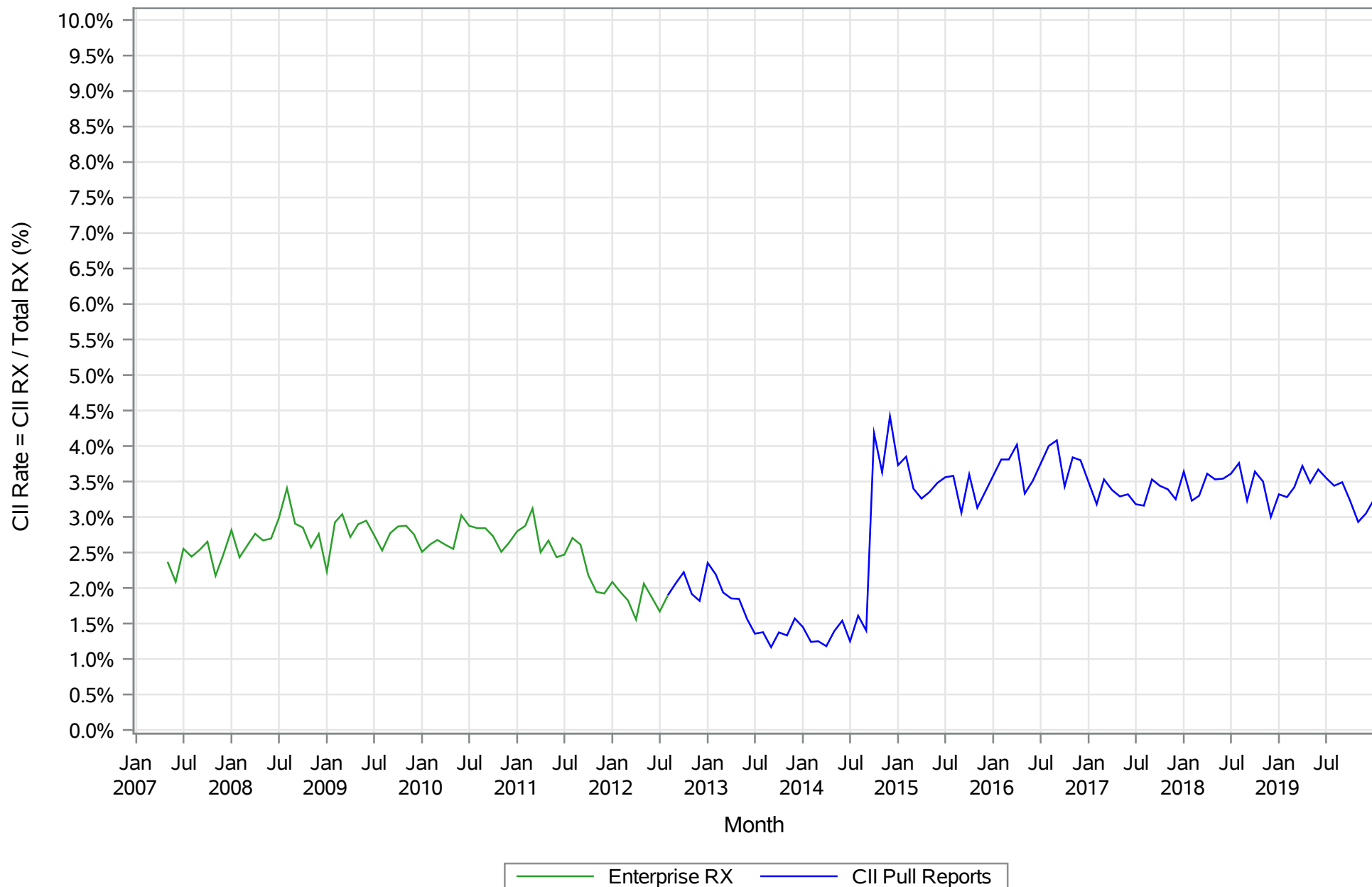
Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

**Exhibit 6.6**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 280, DEA Number BP3836004**



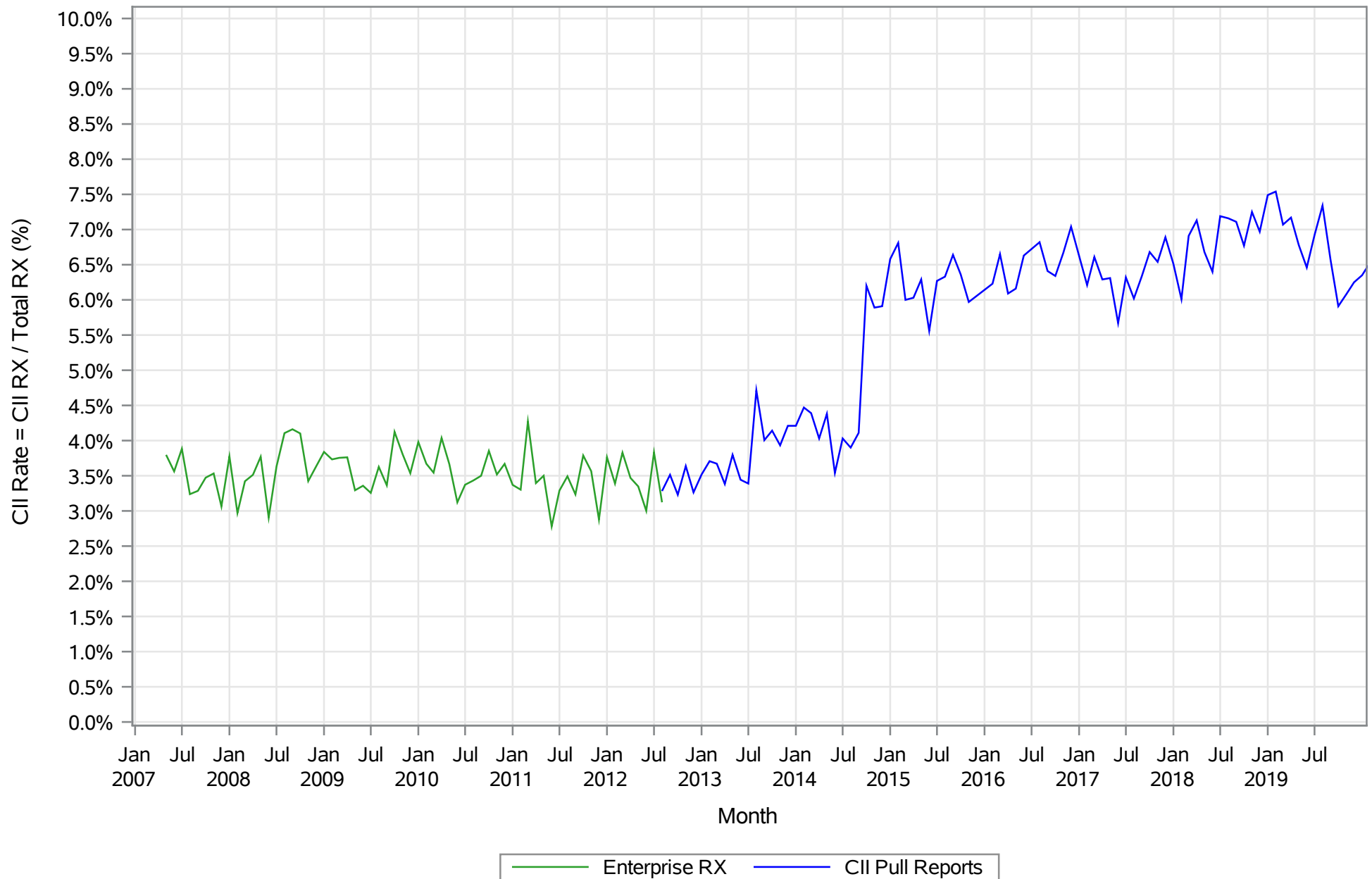
Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.7**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 464, DEA Number BP3872783**



Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

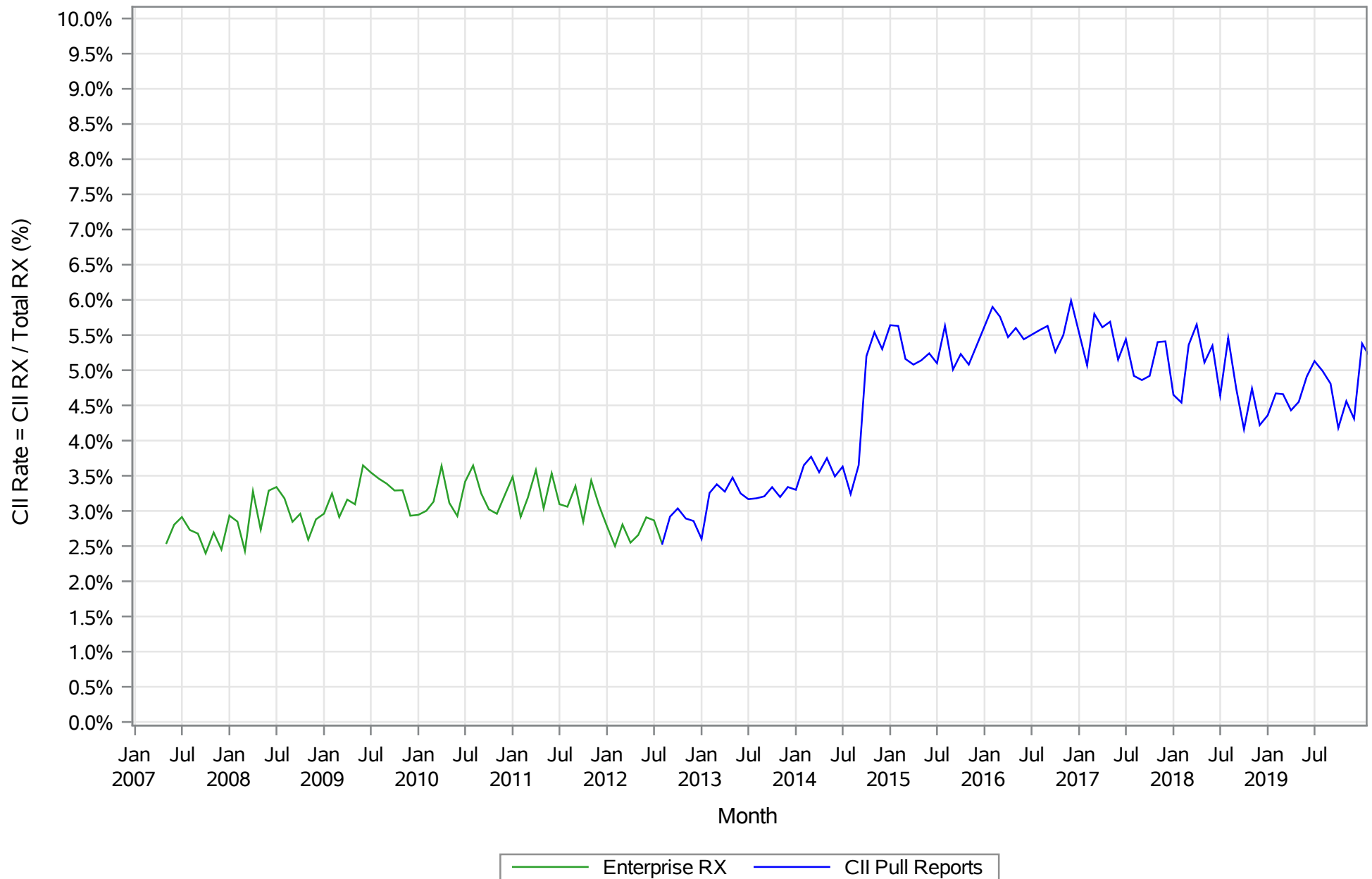
**Exhibit 6.8**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 496, DEA Number BP4186739**



Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

**Exhibit 6.9**

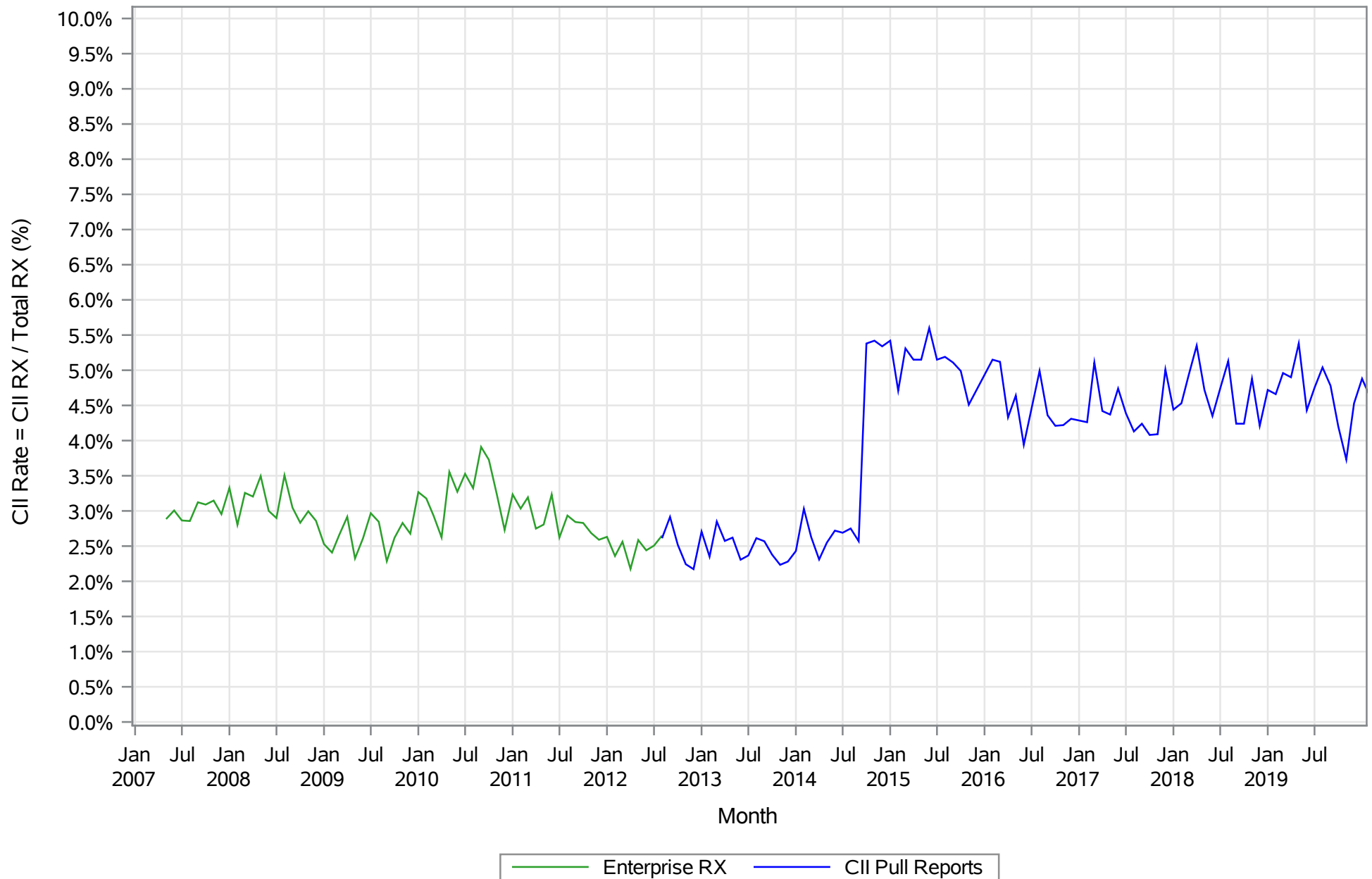
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 536, DEA Number BP4712611**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

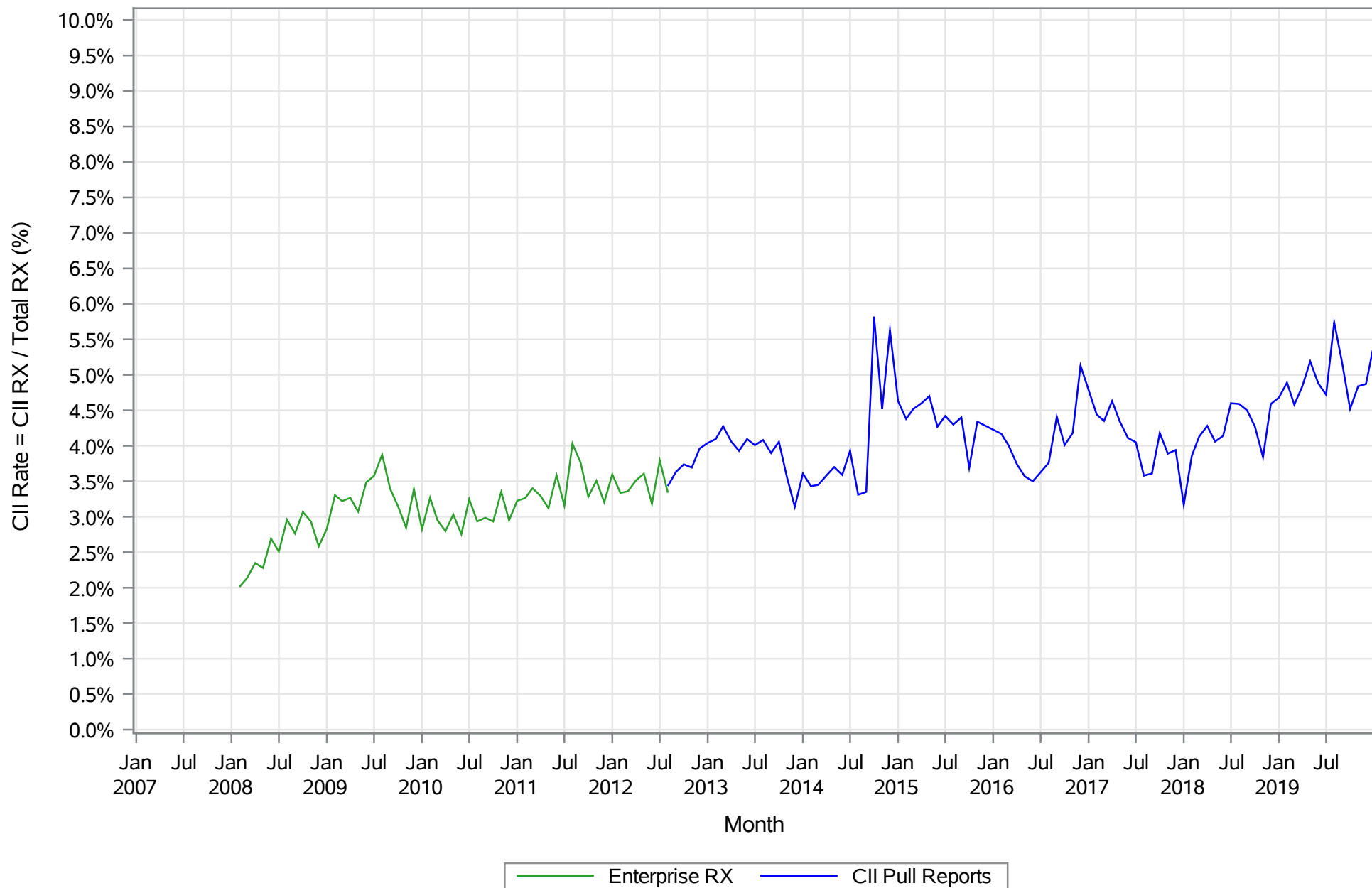


**Exhibit 6.10**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 548, DEA Number BP4625301**



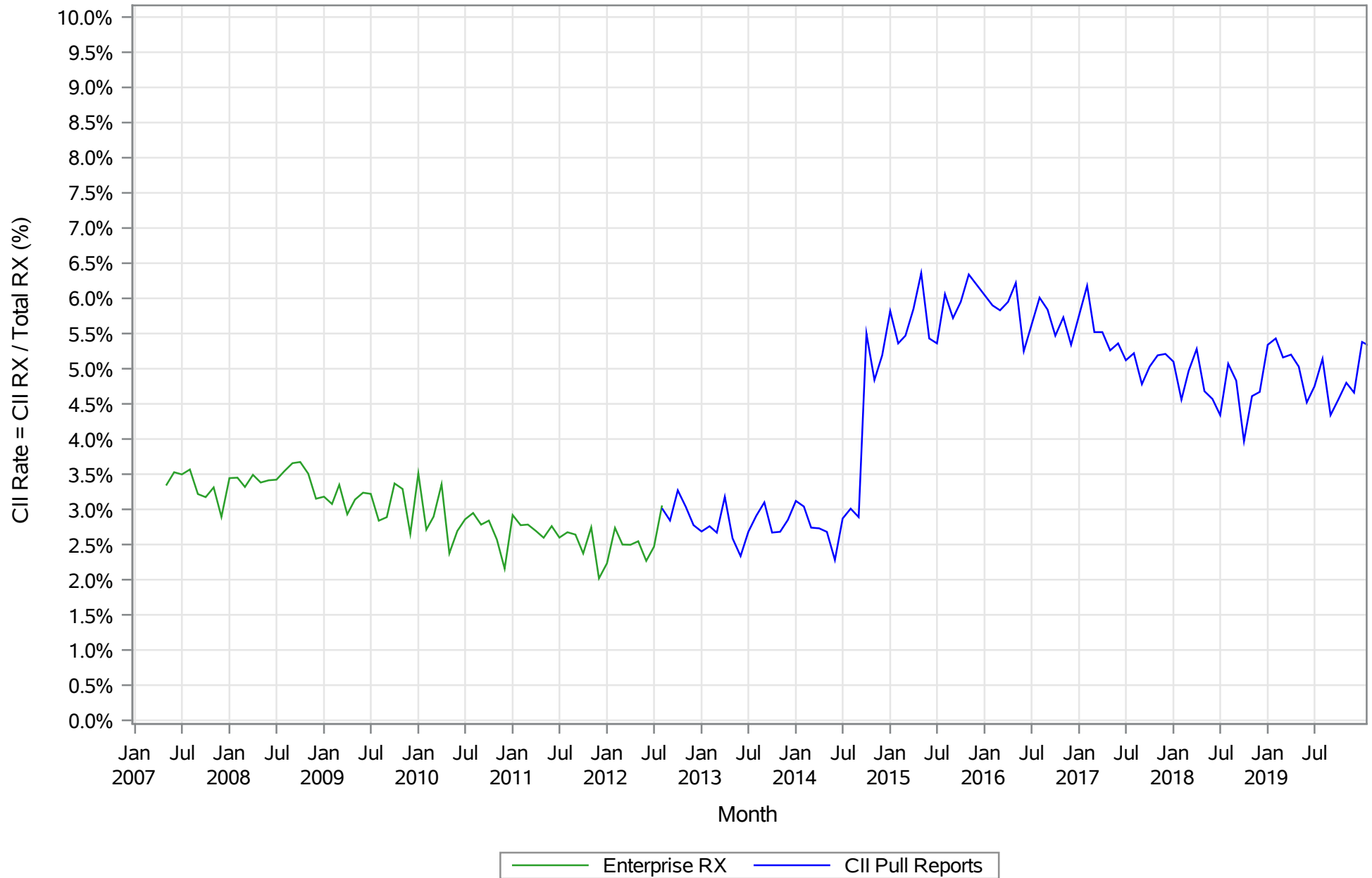
Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

**Exhibit 6.11**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 559, DEA Number BP4737548**



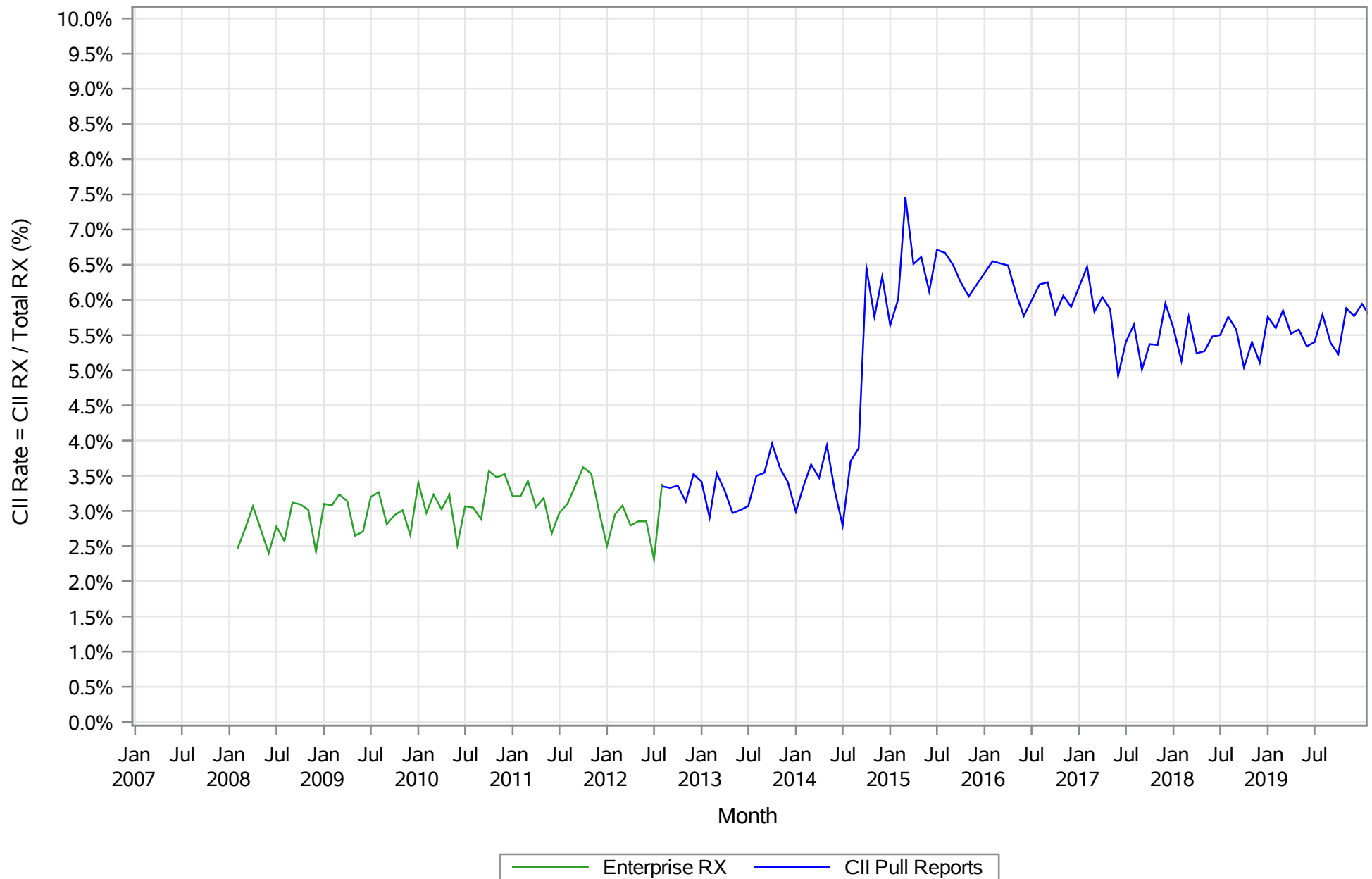
Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

**Exhibit 6.12**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 561, DEA Number BP4742260**



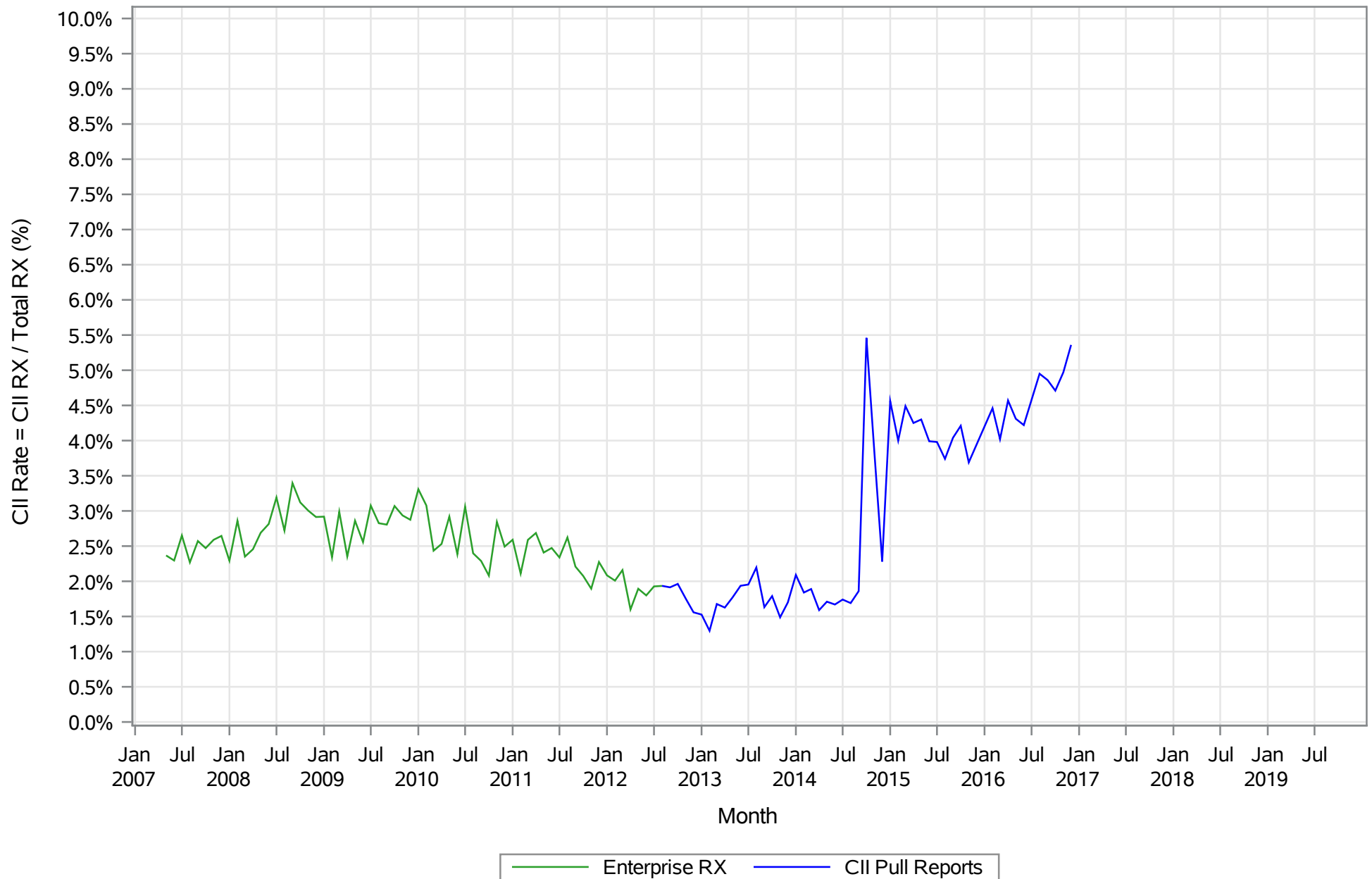
Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.13**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 566, DEA Number BP4878243**



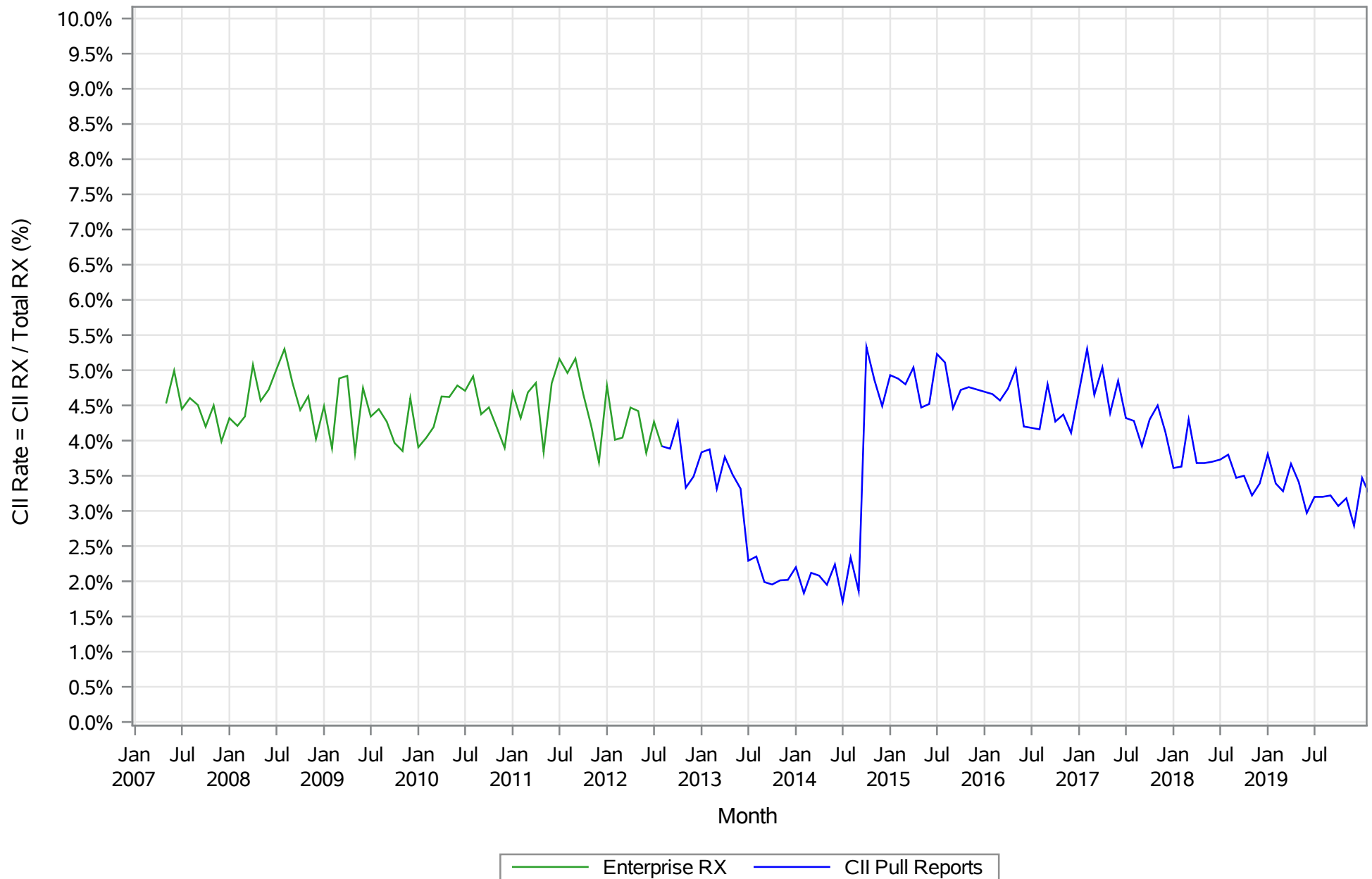
Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

**Exhibit 6.14**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 580, DEA Number BP5126001**



Source: Publix Enterprise Data and Publix CII Pull Reports  
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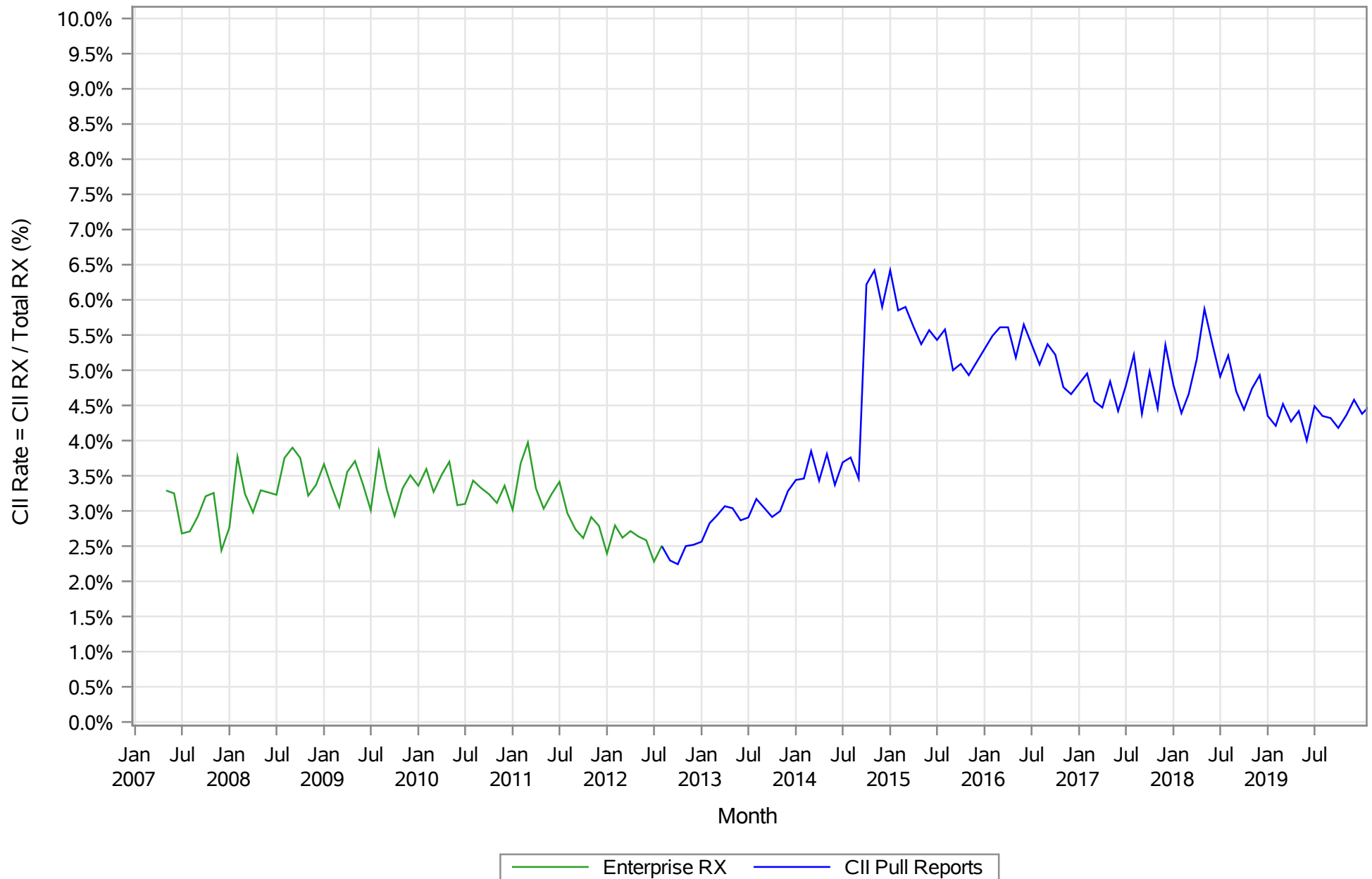
**Exhibit 6.15**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 593, DEA Number BP5727271**



Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

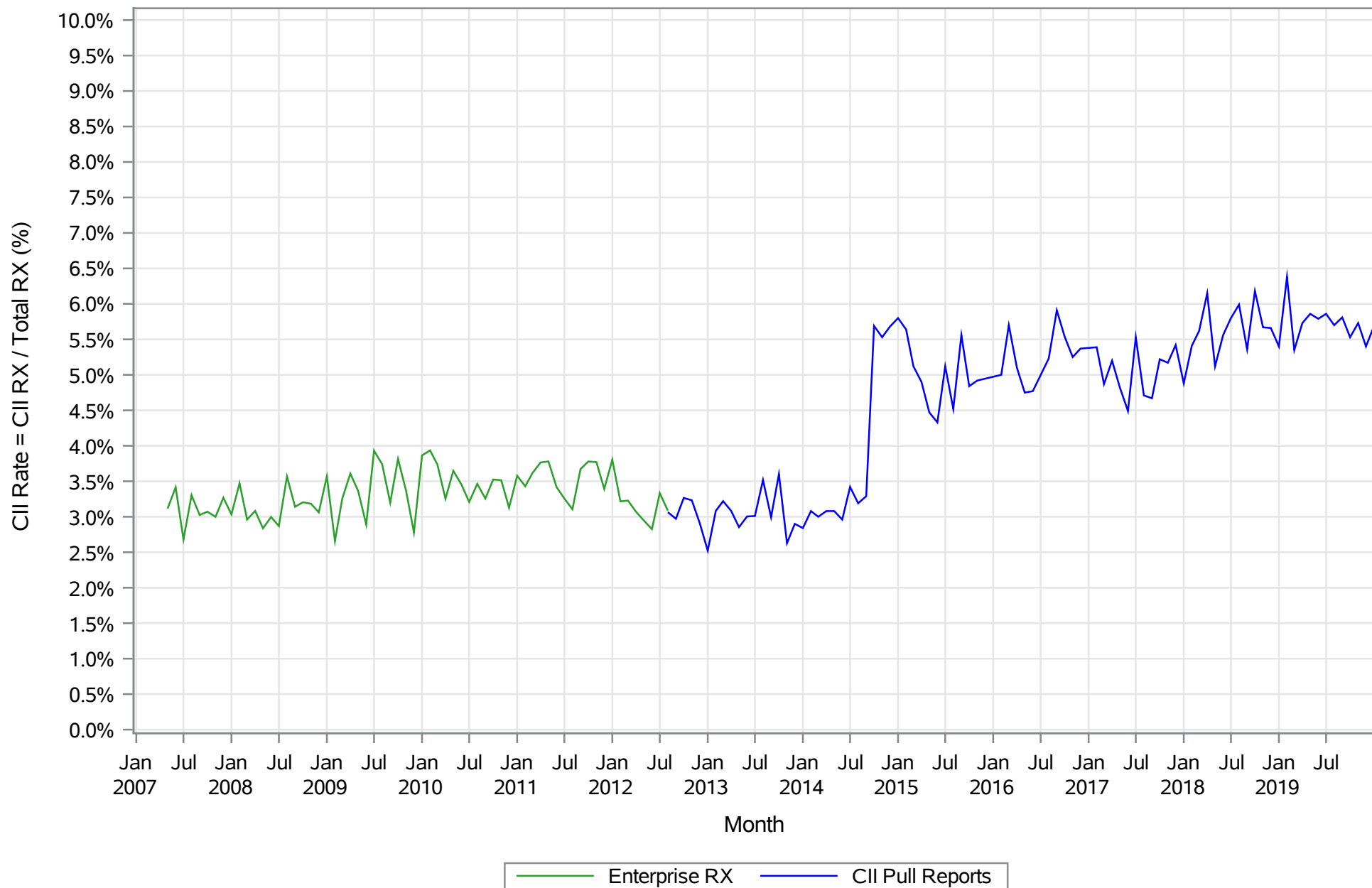


**Exhibit 6.16**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 670, DEA Number BP6259495**



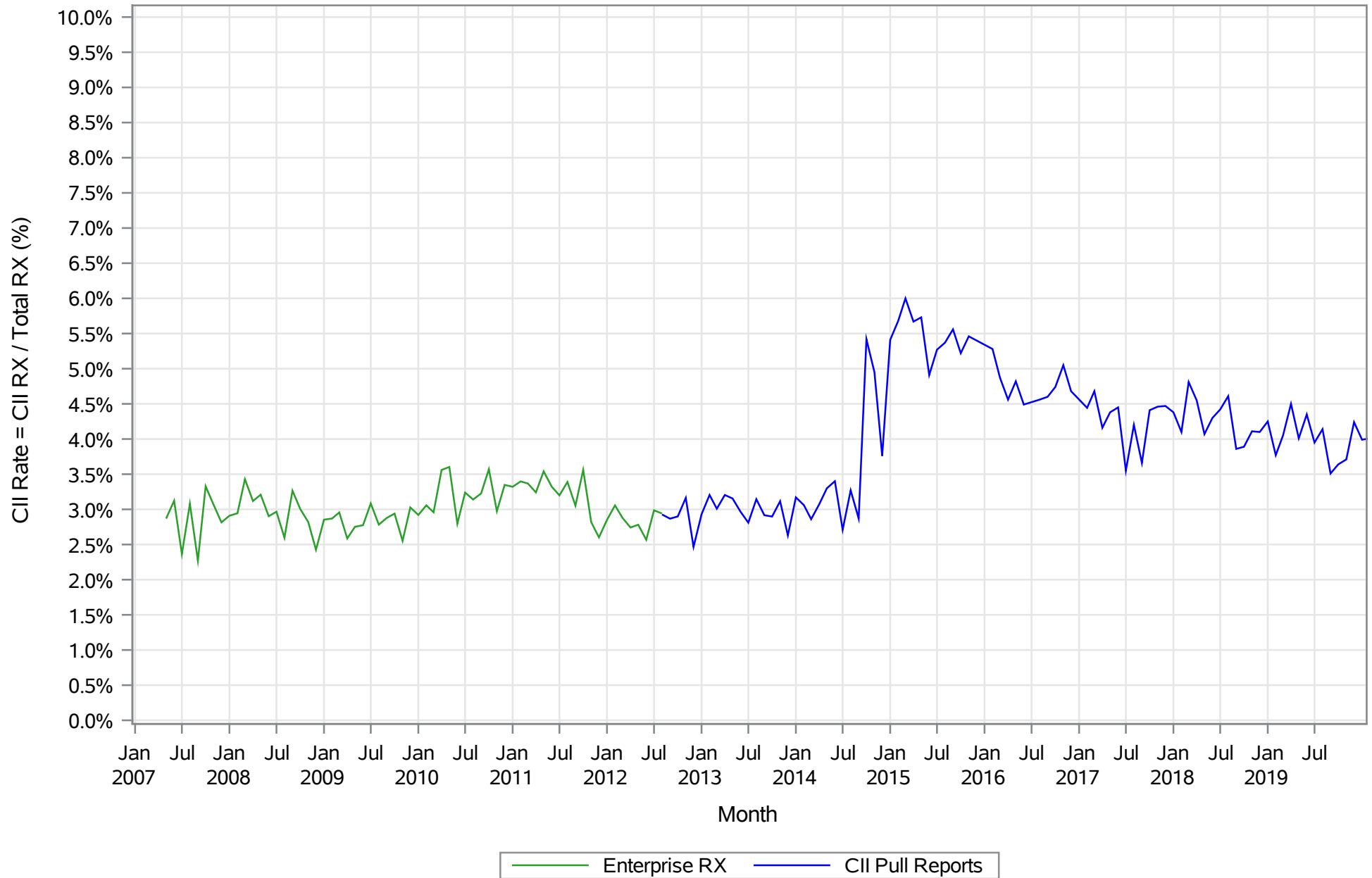
Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.17**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 672, DEA Number BP6259483**



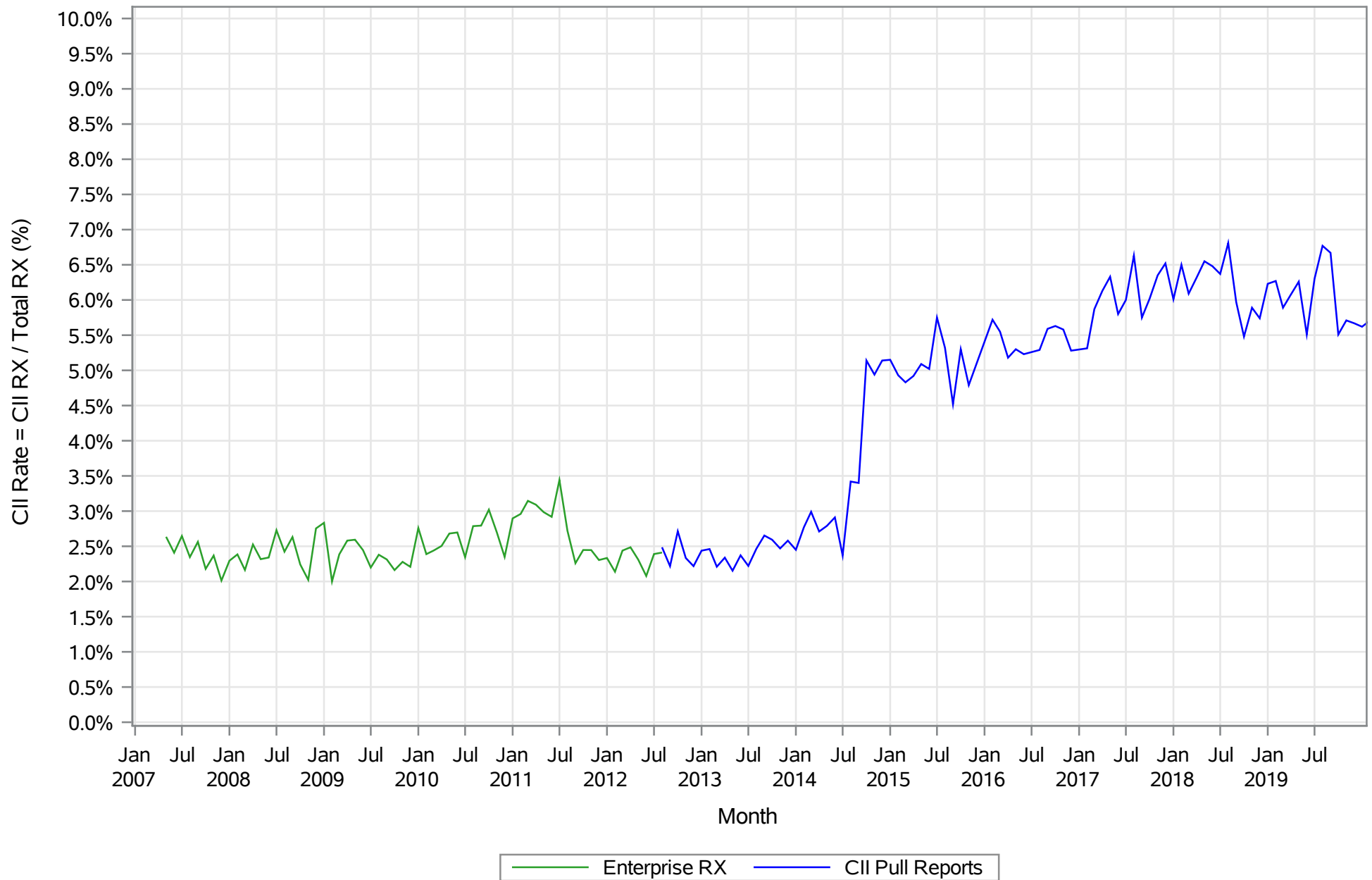
Source: Publix Enterprise Data and Publix CII Pull Reports  
 Confidential - Subject to Protective Order

**Exhibit 6.18**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 725, DEA Number BP6517342**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

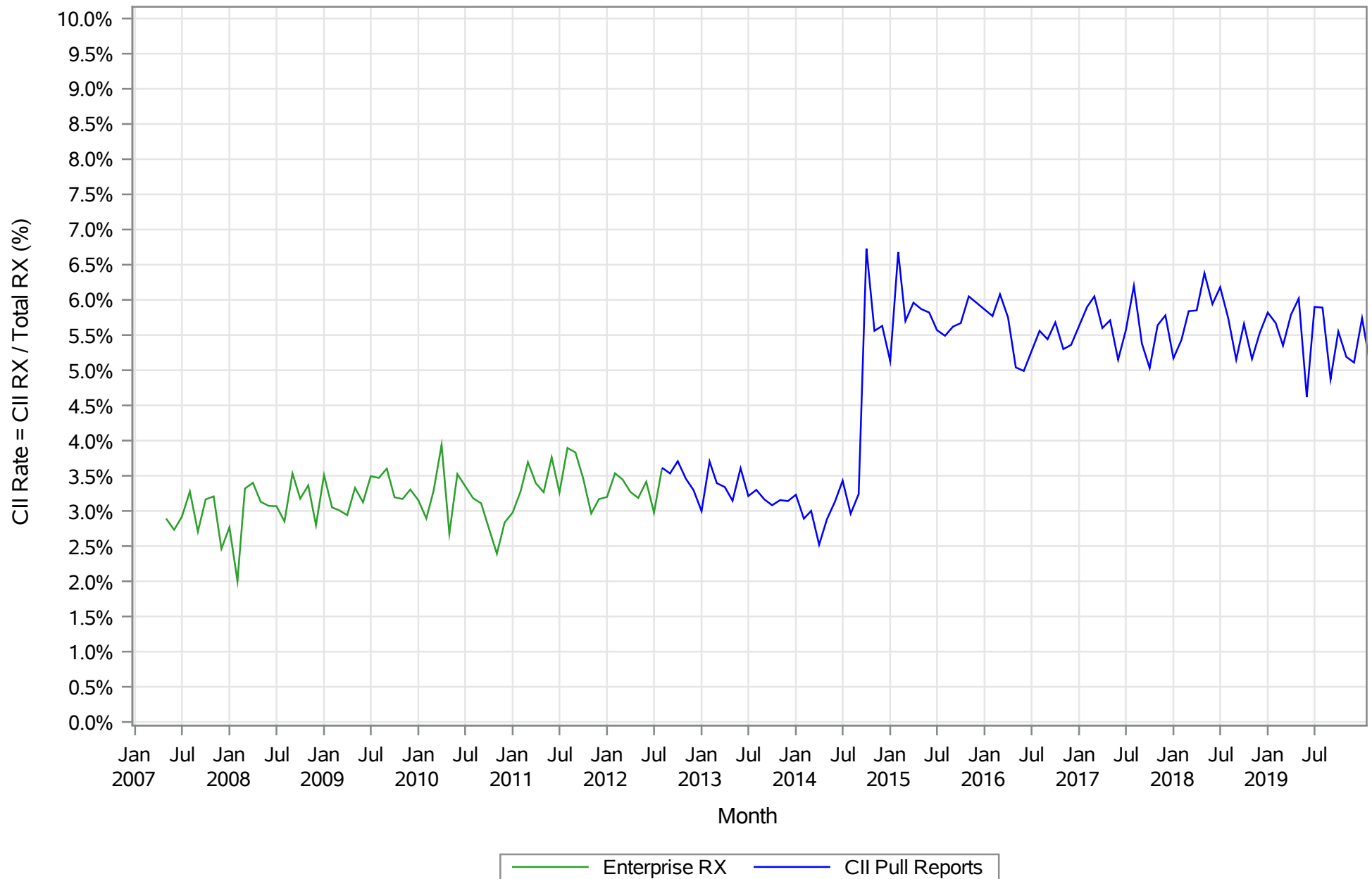
**Exhibit 6.19**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 753, DEA Number BP7039008**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

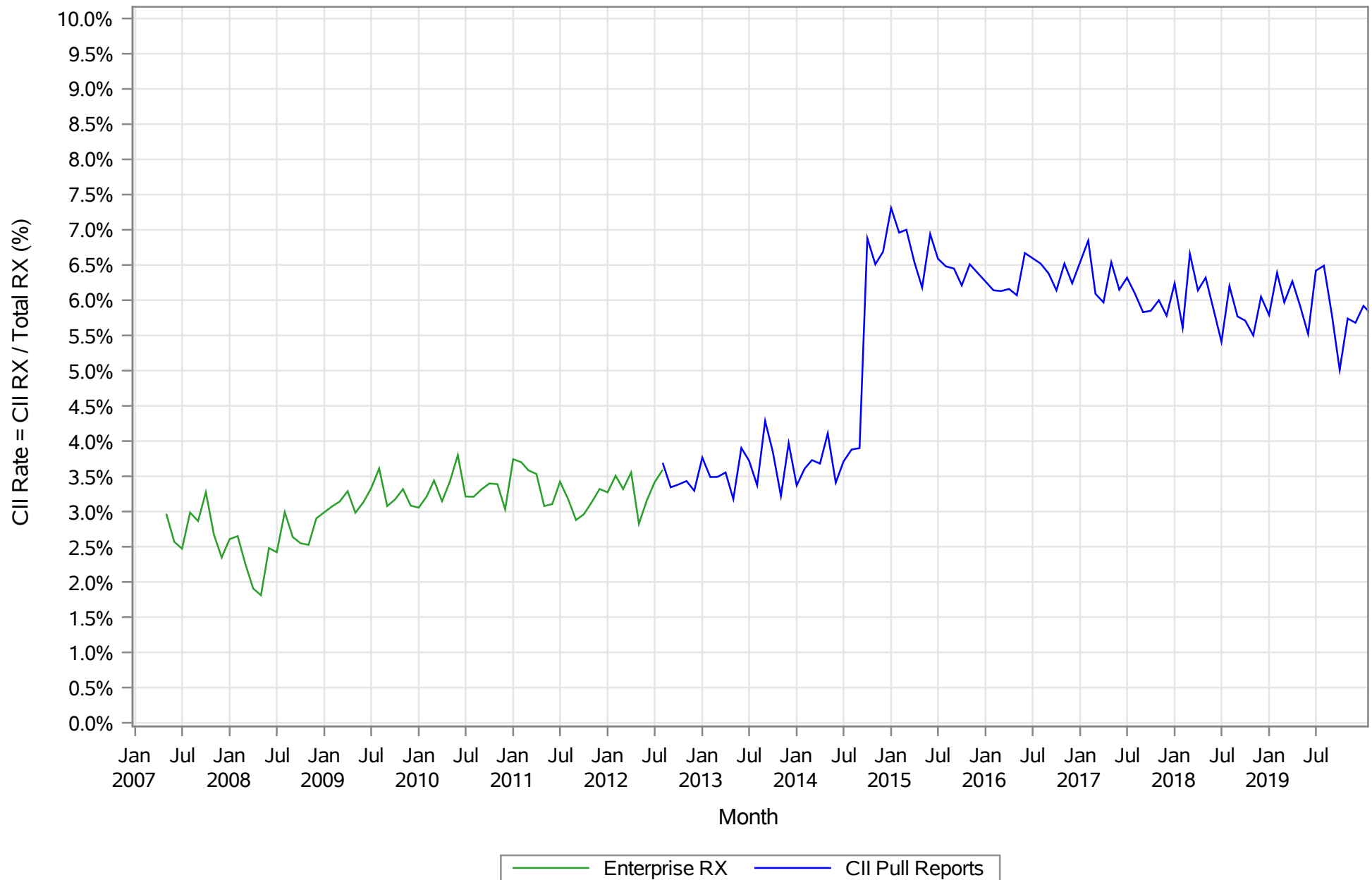
**Exhibit 6.20**

**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 764, DEA Number BP7157286**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.21**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 769, DEA Number BP7201306**

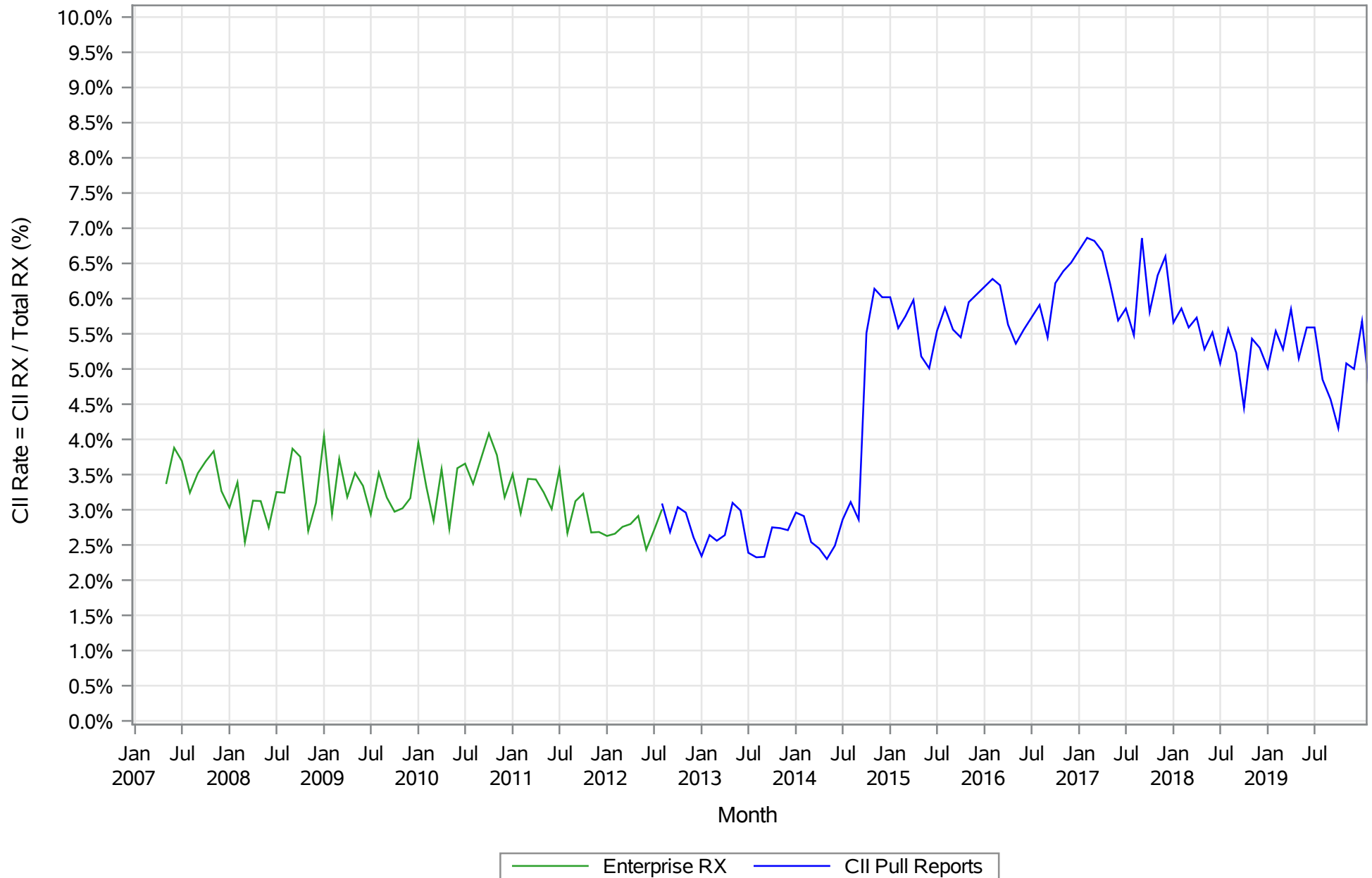


Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order



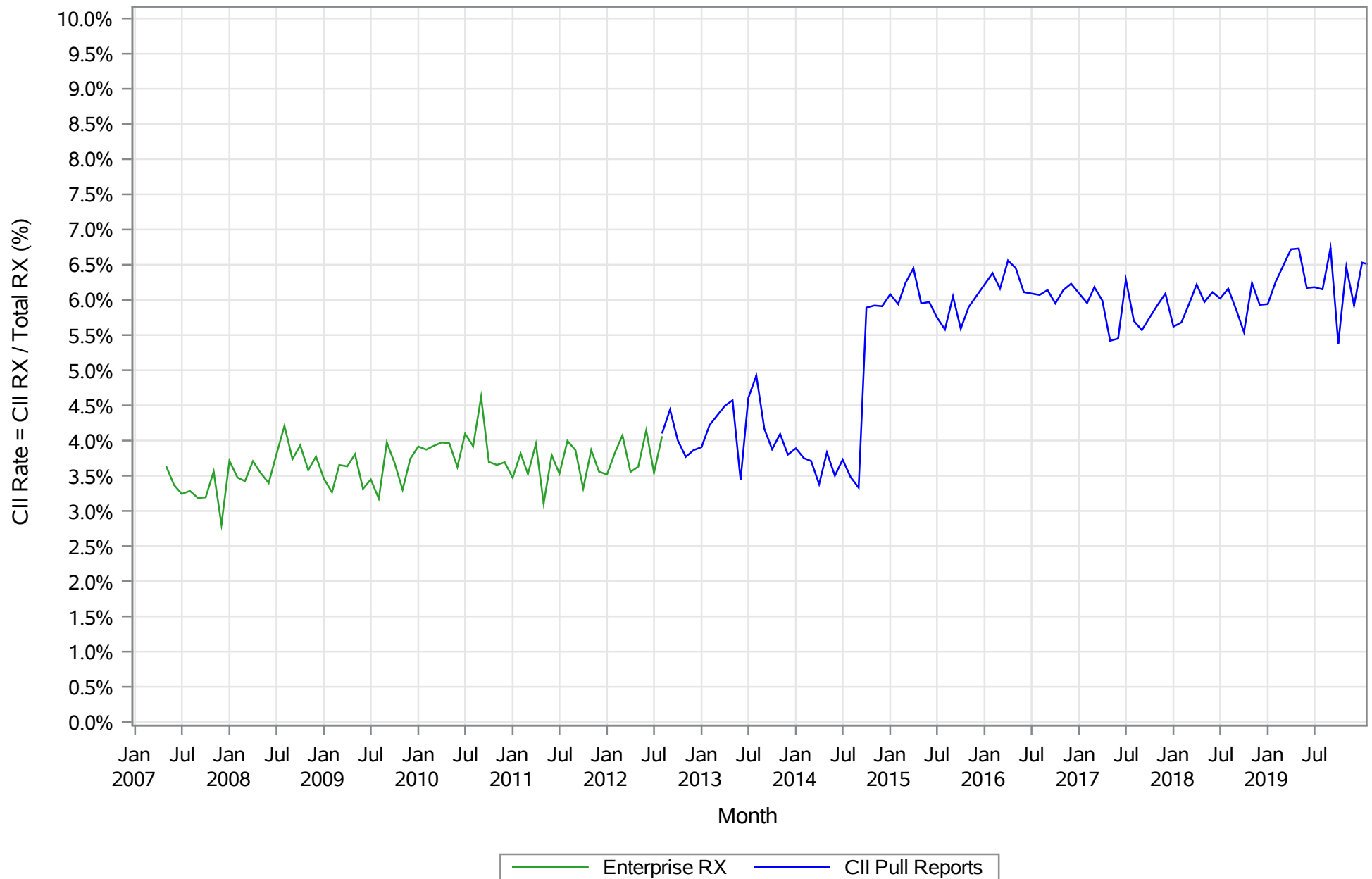
**Exhibit 6.22**

**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 1077, DEA Number BP8761416**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

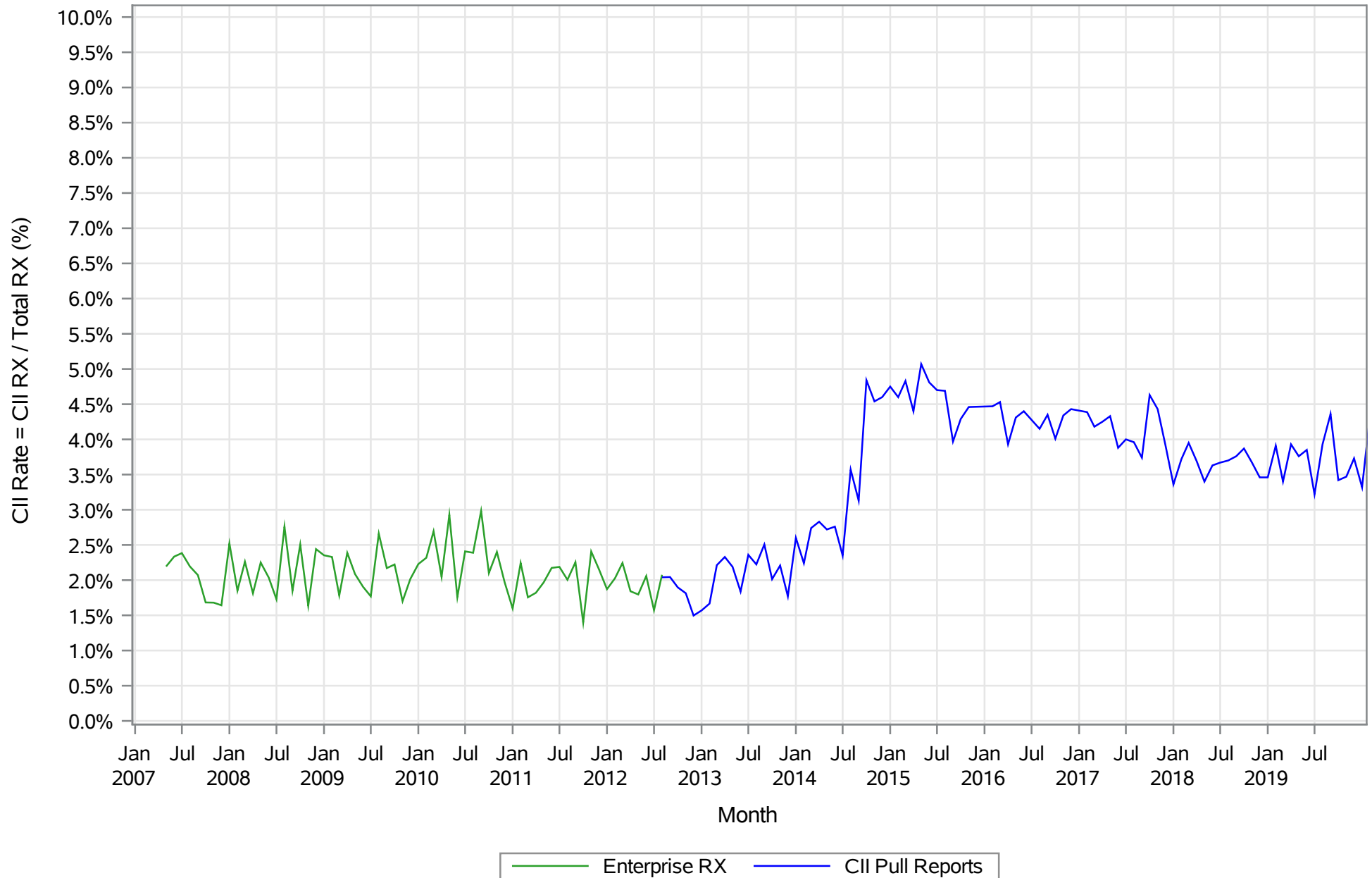
**Exhibit 6.23**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 1096, DEA Number BP9050802**



Source: Publix Enterprise Data and Publix CII Pull Reports  
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**Exhibit 6.24**

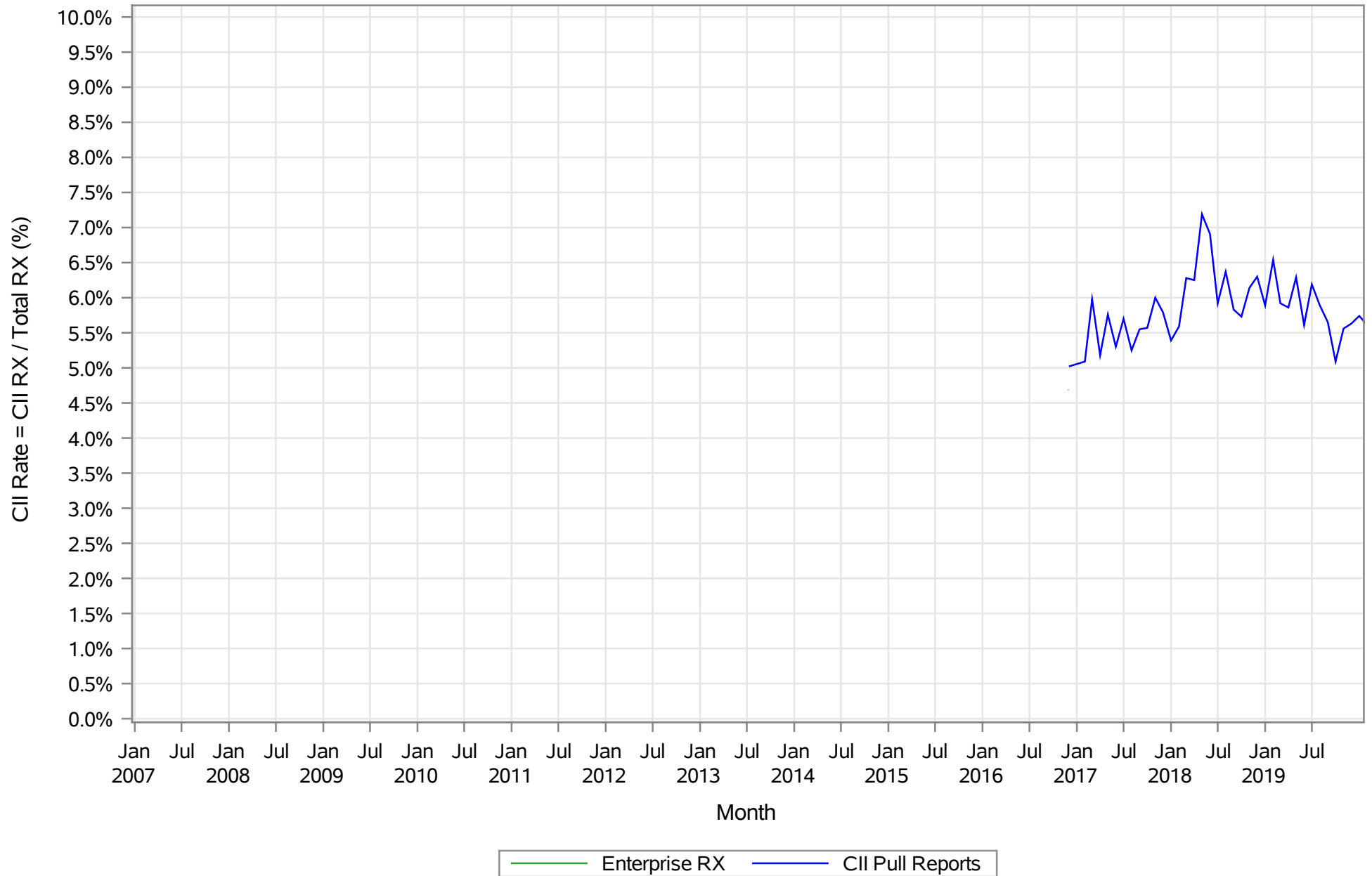
**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 1112, DEA Number BP9017751**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 6.25**

**Publix, Cobb County v. Purdue Pharma, et al**  
**Analysis of Monthly CII Pull Reports, Supplemented with Enterprise Rx CII Rate**  
**Store Number 1250, DEA Number FP6457382**



Source: Publix Enterprise Data and Publix CII Pull Reports  
Confidential - Subject to Protective Order

**Exhibit 7**  
**Publix, Cobb County v. Purdue Pharma, et al**  
**Prescription Counts and McCann Red Flag Rates for the Top 50 Provider Specialties and Taxonomy Codes**  
**Cobb County Publix Stores, May 2006 to May 2019**

Specialization	Taxonomy	Opioid																		
		Opioid Prescriptions	Average Age of Patient	Prescriptions Receiving a Red Flag	Red Flag Rate	Red Flag 1	Red Flag 2	Red Flag 3	Red Flag 4	Red Flag 5	Red Flag 6	Red Flag 7	Red Flag 8	Red Flag 9	Red Flag 10	Red Flag 11	Red Flag 12	Red Flag 13	Red Flag 14	
Emergency Medicine	207P00000X - Emergency Medicine	60,992	9.1%	42	25,108	41.2%	4.0%	6.2%	5.1%	0.6%	0.9%	0.2%	6.5%	1.4%	0.6%	0.3%	1.9%	0.0%	1.2%	26.3%
Pain Medicine	208VP0014X - Pain Medicine - Interventional Pain Medicine	56,666	8.5%	60	41,424	73.1%	1.4%	5.7%	25.1%	3.1%	10.8%	1.6%	27.9%	4.8%	3.2%	10.3%	0.2%	0.7%	53.9%	2.9%
Family Medicine	207Q00000X - Family Medicine	51,484	7.7%	52	21,790	42.3%	3.1%	6.5%	6.0%	1.8%	5.0%	1.2%	19.8%	6.4%	1.9%	3.3%	0.2%	0.4%	11.7%	9.3%
Dentist	1223G0001X - Dentist - General Practice	49,410	7.4%	45	20,015	40.5%	3.1%	5.5%	2.7%	0.5%	0.3%	0.0%	5.6%	0.9%	0.8%	0.0%	0.6%	0.0%	0.6%	29.3%
Internal Medicine	207R00000X - Internal Medicine	39,492	5.9%	60	19,576	49.6%	1.6%	5.8%	8.2%	1.5%	6.2%	1.1%	26.2%	7.1%	1.9%	3.0%	0.0%	0.8%	18.0%	6.7%
Orthopaedic Surgery	207X00000X - Orthopaedic Surgery	39,460	5.9%	56	11,939	30.3%	1.7%	5.3%	7.2%	1.2%	1.9%	0.1%	11.5%	0.8%	2.0%	0.7%	0.2%	0.1%	4.0%	5.6%
Dentist	1223S0112X - Dentist - Oral and Maxillofacial Surgery	30,883	4.6%	39	8,137	26.3%	2.2%	5.1%	2.6%	0.5%	0.2%	0.0%	4.8%	0.6%	2.0%	0.2%	1.8%	0.0%	0.5%	12.7%
Dentist	122300000X - Dentist	25,551	3.8%	45	10,629	41.6%	3.6%	6.5%	2.5%	0.5%	0.6%	0.0%	5.7%	1.6%	0.8%	0.1%	0.2%	0.0%	0.8%	29.8%
Physical Medicine & Rehabilitation	208100000X - Physical Medicine & Rehabilitation	23,987	3.6%	58	14,500	60.4%	1.3%	5.4%	14.2%	2.8%	9.4%	1.4%	22.5%	4.0%	2.0%	8.1%	0.2%	0.5%	40.0%	3.4%
Specialist	174400000X - Specialist	18,044	2.7%	53	8,814	48.8%	1.3%	5.5%	6.0%	1.6%	7.9%	2.5%	25.1%	8.4%	5.4%	7.6%	0.2%	0.3%	23.8%	6.2%
Obstetrics & Gynecology	207V00000X - Obstetrics & Gynecology	17,746	2.6%	38	4,151	23.4%	1.4%	4.0%	3.6%	0.6%	0.4%	0.0%	9.8%	4.3%	1.0%	0.4%	0.0%	0.0%	0.6%	6.7%
Pain Medicine	208VP0000X - Pain Medicine - Pain Medicine	16,491	2.5%	57	12,371	75.0%	1.6%	7.6%	23.1%	3.5%	9.3%	1.9%	25.1%	6.3%	4.2%	14.2%	0.1%	0.5%	53.3%	3.6%
Surgery	208600000X - Surgery	12,205	1.8%	51	3,412	28.0%	2.1%	5.8%	5.4%	0.6%	0.7%	0.0%	9.4%	1.1%	1.1%	1.0%	0.0%	0.0%	2.1%	8.8%
Urology	208800000X - Urology	10,430	1.6%	54	3,031	29.1%	1.7%	5.9%	6.3%	0.6%	0.3%	0.0%	12.4%	3.2%	0.9%	0.2%	0.0%	0.0%	1.6%	6.3%
Anesthesiology	207LP2900X - Anesthesiology - Pain Medicine	10,207	1.5%	60	7,558	74.0%	1.9%	11.8%	18.0%	3.6%	6.6%	1.4%	19.7%	3.6%	2.8%	17.0%	0.1%	0.4%	51.5%	3.0%
Physical Medicine & Rehabilitation	2081P2900X - Physical Medicine & Rehabilitation - Pain Medicine	9,883	1.5%	56	6,770	68.5%	3.1%	6.3%	12.1%	4.4%	9.9%	2.6%	23.7%	6.9%	11.1%	14.9%	0.8%	0.2%	47.0%	4.7%
Dentist	1223E0200X - Dentist - Endodontics	8,597	1.3%	49	2,440	28.4%	2.4%	4.7%	4.2%	0.7%	0.2%	0.0%	7.0%	1.1%	2.0%	0.0%	0.1%	0.0%	0.7%	13.1%
Internal Medicine	207RH0003X - Internal Medicine - Hematology & Oncology	8,456	1.3%	60	5,367	63.5%	2.2%	6.1%	18.1%	3.7%	2.8%	0.0%	31.0%	5.7%	2.2%	14.5%	0.0%	0.2%	33.6%	3.5%
Psychiatry & Neurology	2084N0400X - Psychiatry & Neurology - Neurology	8,121	1.2%	54	4,702	57.9%	1.1%	10.3%	8.6%	1.7%	5.6%	0.3%	24.2%	4.7%	2.4%	5.9%	0.0%	1.5%	28.7%	6.1%
Dentist	1223P0300X - Dentist - Periodontics	7,397	1.1%	52	1,883	25.5%	1.9%	5.1%	1.4%	0.1%	0.3%	0.0%	10.5%	5.2%	0.6%	0.0%	0.2%	0.0%	0.5%	10.1%
Orthopaedic Surgery	207XS0117X - Orthopaedic Surgery - Orthopaedic Surgery of the Spine	7,040	1.1%	57	3,121	44.3%	1.3%	4.2%	10.9%	2.2%	6.3%	0.2%	20.2%	1.6%	2.3%	2.3%	0.0%	0.5%	15.0%	4.3%
Otolaryngology	207Y00000X - Otolaryngology	6,884	1.0%	39	1,669	24.2%	1.6%	5.4%	5.7%	1.0%	0.5%	0.0%	7.6%	1.6%	2.4%	0.6%	0.0%	0.0%	2.2%	5.1%
Emergency Medicine	207PE0004X - Emergency Medicine - Emergency Medical Services	6,716	1.0%	40	4,410	65.7%	4.9%	6.3%	1.7%	0.4%	1.3%	0.8%	8.7%	5.6%	0.2%	0.1%	16.3%	0.0%	0.4%	50.2%
Physician Assistant	363A00000X - Physician Assistant	5,786	0.9%	44	2,457	42.5%	3.5%	6.9%	7.1%	0.9%	1.7%	0.1%	8.2%	1.6%	0.8%	0.2%	0.8%	0.1%	2.0%	24.7%
Anesthesiology	207L00000X - Anesthesiology	5,149	0.8%	57	3,739	72.6%	2.7%	11.1%	16.6%	4.2%	8.1%	0.5%	22.2%	6.5%	5.0%	13.0%	0.1%	0.8%	51.7%	3.1%
Neurological Surgery	207T00000X - Neurological Surgery	4,896	0.7%	57	2,182	44.6%	2.2%	6.5%	11.6%	2.4%	7.3%	0.7%	23.2%	5.1%	2.2%	1.5%	0.0%	0.1%	11.4%	4.0%
Orthopaedic Surgery	207XS0106X - Orthopaedic Surgery - Hand Surgery	4,685	0.7%	52	1,242	26.5%	1.4%	4.0%	7.4%	0.8%	0.9%	0.0%	9.3%	0.7%	1.5%	0.5%	0.1%	0.0%	1.5%	7.3%
Neuromusculoskeletal Medicine & OMM	204D00000X - Neuromusculoskeletal Medicine & OMM	4,643	0.7%	56	2,604	56.1%	2.1%	2.3%	7.5%	1.7%	12.9%	1.4%	35.1%	8.6%	3.2%	2.6%	0.0%	1.4%	20.2%	7.0%
Orthopaedic Surgery	207XX0005X - Orthopaedic Surgery - Sports Medicine	4,534	0.7%	51	1,263	27.9%	2.1%	6.5%	6.3%	0.9%	0.6%	0.0%	9.7%	0.9%	1.9%	0.9%	0.0%	0.0%	2.3%	5.8%
Internal Medicine	207RR0500X - Internal Medicine - Rheumatology	4,348	0.6%	61	2,002	46.0%	1.3%	5.5%	10.1%	1.7%	8.2%	0.6%	19.8%	2.9%	1.6%	0.3%	0.0%	3.2%	20.7%	5.6%
Plastic Surgery	208200000X - Plastic Surgery	4,269	0.6%	46	2,065	48.4%	3.2%	11.6%	3.2%	0.8%	8.1%	6.1%	29.9%	17.4%	5.7%	0.9%	0.1%	0.0%	0.8%	10.7%
Hospitalist	208M00000X - Hospitalist	4,213	0.6%	54	1,871	44.4%	3.0%	6.2%	10.0%	0.9%	1.8%	0.4%	15.8%	4.6%	2.0%	2.3%	0.0%	0.0%	5.4%	17.3%
Podiatrist	213E00000X - Podiatrist	3,676	0.5%	50	1,142	31.1%	1.4%	3.8%	5.6%	1.7%	1.7%	0.1%	15.3%	3.8%	1.7%	0.9%	0.0%	0.1%	3.8%	7.1%
Ophthalmology	207W00000X - Ophthalmology	3,491	0.5%	53	1,489	42.7%	5.6%	9.1%	5.7%	1.7%	3.4%	1.0%	17.0%	6.3%	2.3%	5.9%	1.1%	0.1%	13.7%	10.9%
Dermatology	207N00000X - Dermatology	3,399	0.5%	59	900	26.5%	1.9%	5.8%	2.6%	0.2%	0.3%	0.0%	8.1%	1.5%	1.7%	0.2%	6.3%	0.0%	0.8%	5.5%
Colon & Rectal Surgery	208C00000X - Colon & Rectal Surgery	3,260	0.5%	50	931	28.6%	8.2%	10.9%	5.0%	0.9%	0.4%	0.0%	7.6%	0.5%	0.8%	0.4%	0.1%	0.0%	0.9%	5.9%
Pediatrics	208000000X - Pediatrics	2,897	0.4%	24	702	24.2%	2.0%	4.5%	3.8%	0.7%	0.6%	0.0%	4.4%	0.7%	0.9%	0.8%	0.0%	0.1%	0.9%	13.5%
General Practice	208D00000X - General Practice	2,718	0.4%	51	1,954	71.9%	7.1%	14.7%	9.1%	3.6%	16.3%	5.0%	34.4%	19.3%	9.6%	16.9%	0.0%	0.6%	32.7%	13.3%
Surgery	2086S0122X - Surgery - Plastic and Reconstructive Surgery	2,682	0.4%	46	1,012	37.7%	2.7%	6.0%	2.5%	0.8%	1.8%	0.2%	17.9%	7.8%	6.9%	1.3%	0.0%	0.0%	0.6%	9.0%
Nurse Practitioner	363LF0000X - Nurse Practitioner - Family	2,646	0.4%	46	1,072	40.5%	4.5%	6.4%	10.1%	1.5%	2.8%	0.4%	10.0%	1.7%	0.7%	0.3%	0.0%	0.3%	5.9%	17.7%
Oral & Maxillofacial Surgery	204E00000X - Oral & Maxillofacial Surgery	2,544	0.4%	37	642	25.2%	2.6%	5.2%	2.7%	0.7%	0.3%	0.0%	4.3%	0.3%	0.9%	0.0%	2.8%	0.0%	0.3%	12.2%
Internal Medicine	207RG0100X - Internal Medicine - Gastroenterology	2,491	0.4%	56	1,417	56.9%	1.1%	23.2%	11.2%	2.5%	1.0%	0.0%	20.4%	4.3%	2.3%	0.5%	0.0%	0.6%	25.7%	5.8%
Surgery	2086S0129X - Surgery - Vascular Surgery	2,304	0.3%	60	768	33.3%	1.3%	3.4%	7.8%	0.3%	0.7%	0.0%	14.2%	0.7%	1.8%	0.5%	0.0%	0.0%	5.0%	9.4%
Podiatrist	213ES0103X - Podiatrist - Foot & Ankle Surgery	2,187	0.3%	51	557	25.5%	1.5%	5.7%	5.0%	1.0%	0.8%	0.0%	9.1%	0.6%	2.0%	0.5%	0.0%	0.0%	2.2%	5.1%
Orthopaedic Surgery	207XX0004X - Orthopaedic Surgery - Foot and Ankle Surgery	2,069	0.3%	52	579	28.0%	1.0%	2.4%	7.7%	2.6%	1.7%	0.0%	10.1%	0.8%	1.5%	0.5%	0.0%	0.0%	6.7%	5.8%
Dermatology	207ND0101X - Dermatology - MOHS-Micrographic Surgery	1,930	0.3%	64	362	18.8%	1.0%	4.8%	2.0%	0.3%	0.1%	0.0%	8.4%	0.6%	0.9%	0.2%	0.4%	0.0%	0.8%	4.0%
Internal Medicine	207RI0011X - Internal Medicine - Interventional Cardiology	1,826	0.3%	39	1,404	76.9%	4.3%	4.5%	3.6%	2.2%	2.8%	1.8%	13.5%	8.1%	0.1%	0.1%	18.7%	0.0%	0.8%	63.9%
Obstetrics & Gynecology	207VG0400X - Obstetrics & Gynecology - Gynecology	1,680	0.3%	40	587	34.9%	3.0%	8.3%	3.1%	0.5%	1.0%	0.2%	14.8%	7.1%	0.7%	0.4%	0.0%	0.4%	1.7%	13.7%
Surgery	2086S0105X - Surgery - Surgery of the Hand	1,594	0.2%	51	346	21.7%	1.2%	2.4%	7.3%	1.3%	0.8%	0.0%	5.8%	0.1%	1.1%	0.4%	0.3%	0.0%	2.0%	6.8%
Internal Medicine	207RP1001X - Internal Medicine - Pulmonary Disease	1,580	0.2%	58	1,026	64.9%	2.8%	6.6%	9.4%	1.4%	3.3%	1.6%	24.4%	9.1%	20.4%	18.4%	0.0%	0.5%	31.7%	13.2%
All Others	All Others	56,189	8.4%	49	25,937	46.2%	3.3%	9.8%	7.7%	1.7%	3.0%	0.9%	18.4%	6.4%	3.0%	6.2%	0.1%	0.4%	11.7%	12.9%
Total		669,828	100.0%	51	305,069	45.5%	2.5%	6.4%	8.5%	1.5%	3.9%	0.7%	15.8%	3.9%	2.2%	3.9%	0.7%	0.3%	15.2%	12.4%

Source: Publix Dispensing Data, Processed by Dr. McCann; NPI NPPEs Data.

Exhibit 8  
Publix, Cobb County v. Purdue Pharma, et al  
Select Doctors in Keller Report  
Total Opioid Prescriptions Written and Portion Filled by Publix Pharmacies in Cobb County  
May 2007 to December 2017

Last Name	First Name	Doctor County	Opioid Prescriptions Written			Opioid Prescriptions Filled by Publix Pharmacies in Cobb County			As a % of Opioid Prescriptions Written		
			Rx	Doses	MME	Rx	Doses	MME	Rx	Doses	MME
ASKARI	NEVORN	DEKALB	30,382	3,384,076	100,659,584	78	8,730	352,560	0.3%	0.3%	0.4%
BENDER	JAY	FULTON	59,152	4,015,799	113,338,676	1,557	106,713	2,749,737	2.6%	2.7%	2.4%
BURTON	JOSEPH	DEKALB	1,672	158,960	4,049,906	19	2,010	79,875	1.1%	1.3%	2.0%
GOLIGHTLY	DANIEL	COBB	9,351	1,070,814	42,802,217	120	10,183	399,783	1.3%	1.0%	0.9%
LESLIE	HARVEY	DEKALB	72,515	6,839,211	114,848,722	333	33,158	476,480	0.5%	0.5%	0.4%
MABINE	LARRY	CHEROKEE	52,886	4,732,357	141,960,204	1,602	122,110	3,626,750	3.0%	2.6%	2.6%
MILLS	ANTHONY	FULTON	2,884	160,634	3,097,234	36	2,110	38,588	1.2%	1.3%	1.2%
MOSS	JOHN	FULTON	33,403	2,325,651	68,667,581	343	21,849	603,775	1.0%	0.9%	0.9%
NAGAREDDY	NARENDRA	CLAYTON	17,919	1,459,029	17,408,171	28	1,740	15,000	0.2%	0.1%	0.1%
RICHARDSON	WILLIAM	COBB	13,612	1,322,998	38,318,395	74	7,595	223,373	0.5%	0.6%	0.6%
ROLAND	ROMIE	FULTON	19,148	1,915,854	43,649,924	251	20,808	515,646	1.3%	1.1%	1.2%
SHAH	CHANDRESH	COBB	3,095	211,858	3,288,212	199	11,523	155,300	6.4%	5.4%	4.7%
SVED	ISAAC	GWINNETT	31,551	2,917,385	88,877,146	50	3,783	111,503	0.2%	0.1%	0.1%
<b>Total</b>			<b>347,569</b>	<b>30,514,625</b>	<b>780,965,972</b>	<b>4,690</b>	<b>352,312</b>	<b>9,348,368</b>	<b>1.3%</b>	<b>1.2%</b>	<b>1.2%</b>

Sources: IQVIA Data, processed by Ms. Keller.

Publix Dispensing Data, processed by Dr. McCann.

Note: The IQVIA Data does not include opium (powdered), whereas the Publix Dispensing data does.

The Publix Dispensing data spans May 2007 to May 2019. The IQVIA data spans January 2007 to December 2017. This analysis evaluates the intersection of those two datasets, May 2007 to December 2017.



## Exhibit 9

Publix, Cobb County v. Purdue Pharma, et al

Select Doctors in Keller Report

Opioid Prescriptions Filled as a Percentage of All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County  
May 2007 to December 2017

Last Name	First Name	Doctor County	Opioid Prescriptions Filled by Publix Pharmacies in Cobb County			As a % of All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County		
			Rx	Doses	MME	Rx	Doses	MME
ASKARI	NEVORN	DEKALB	78	8,730	352,560	0.013%	0.034%	0.092%
BENDER	JAY	FULTON	1,557	106,713	2,749,737	0.257%	0.417%	0.719%
BURTON	JOSEPH	DEKALB	19	2,010	79,875	0.003%	0.008%	0.021%
GOLIGHTLY	DANIEL	COBB	120	10,183	399,783	0.020%	0.040%	0.105%
LESLIE	HARVEY	DEKALB	333	33,158	476,480	0.055%	0.130%	0.125%
MABINE	LARRY	CHEROKEE	1,602	122,110	3,626,750	0.264%	0.477%	0.948%
MILLS	ANTHONY	FULTON	36	2,110	38,588	0.006%	0.008%	0.010%
MOSS	JOHN	FULTON	343	21,849	603,775	0.057%	0.085%	0.158%
NAGAREDDY	NARENDRA	CLAYTON	28	1,740	15,000	0.005%	0.007%	0.004%
RICHARDSON	WILLIAM	COBB	74	7,595	223,373	0.012%	0.030%	0.058%
ROLAND	ROMIE	FULTON	251	20,808	515,646	0.041%	0.081%	0.135%
SHAH	CHANDRESH	COBB	199	11,523	155,300	0.033%	0.045%	0.041%
SVED	ISAAC	GWINNETT	50	3,783	111,503	0.008%	0.015%	0.029%
<b>Opioid Prescriptions Written by Select Doctors and Filled by Publix Pharmacies in Cobb County</b>			<b>4,690</b>	<b>352,312</b>	<b>9,348,368</b>	<b>0.77%</b>	<b>1.38%</b>	<b>2.44%</b>
<b>All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County</b>			<b>605,816</b>	<b>25,588,442</b>	<b>382,497,276</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Sources: Publix Dispensing Data, processed by Dr. McCann.

Note: The IQVIA Data does not include opium (powdered), whereas the Publix Dispensing data does.

The Publix Dispensing data spans May 2007 to May 2019. The IQVIA data spans January 2007 to December 2017. This analysis evaluates the intersection of those two datasets, May 2007 to December 2017.

## Exhibit 9B - Supplemental (Includes Three Doctors Not Available in IQVIA)

Publix, Cobb County v. Purdue Pharma, et al

Select Doctors in Keller Report

Opioid Prescriptions Filled as a Percentage of All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County  
May 2007 to December 2017

Last Name	First Name	Doctor County	Opioid Prescriptions Filled by Publix Pharmacies in Cobb County			As a % of All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County		
			Rx	Doses	MME	Rx	Doses	MME
ASKARI	NEVORN	DEKALB	78	8,730	352,560	0.013%	0.034%	0.092%
BENDER	JAY	FULTON	1,557	106,713	2,749,737	0.257%	0.417%	0.719%
BURTON	JOSEPH	DEKALB	19	2,010	79,875	0.003%	0.008%	0.021%
GOLIGHTLY	DANIEL	COBB	120	10,183	399,783	0.020%	0.040%	0.105%
LESLIE	HARVEY	DEKALB	333	33,158	476,480	0.055%	0.130%	0.125%
LIU	YONG		117	5,677	130,195	0.019%	0.022%	0.034%
MABINE	LARRY	CHEROKEE	1,602	122,110	3,626,750	0.264%	0.477%	0.948%
MILLS	ANTHONY	FULTON	36	2,110	38,588	0.006%	0.008%	0.010%
MOSS	JOHN	FULTON	343	21,849	603,775	0.057%	0.085%	0.158%
NAGAREDDY	NARENDRA	CLAYTON	28	1,740	15,000	0.005%	0.007%	0.004%
RICHARDSON	WILLIAM	COBB	74	7,595	223,373	0.012%	0.030%	0.058%
ROLAND	ROMIE	FULTON	251	20,808	515,646	0.041%	0.081%	0.135%
SHAH	CHANDRESH	COBB	199	11,523	155,300	0.033%	0.045%	0.041%
STOKES	OSCAR		273	27,671	717,633	0.045%	0.108%	0.188%
SVED	ISAAC	GWINNETT	50	3,783	111,503	0.008%	0.015%	0.029%
ZAKERS	GREGORY		312	25,046	755,642	0.052%	0.098%	0.198%
<b>Opioid Prescriptions Written by Select Doctors and Filled by Publix Pharmacies in Cobb County</b>			<b>5,392</b>	<b>410,706</b>	<b>10,951,837</b>	<b>0.89%</b>	<b>1.61%</b>	<b>2.86%</b>
<b>All Opioid Prescriptions Filled by Publix Pharmacies in Cobb County</b>			<b>605,816</b>	<b>25,588,442</b>	<b>382,497,276</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Sources: Publix Dispensing Data, processed by Dr. McCann.

Note: The IQVIA Data does not include opium (powdered), whereas the Publix Dispensing data does.

The Publix Dispensing data spans May 2007 to May 2019. The IQVIA data spans January 2007 to December 2017. This analysis evaluates the intersection of those two datasets, May 2007 to December 2017.